1932.

NEW ZEALAND.

DEPARTMENT OF HEALTH.

ANNUAL REPORT OF THE DIRECTOR-GENERAL OF HEALTH.

Presented in pursuance of Section 100 of the Hospitals and Charitable Institutions Act, 1926.

HON. J. A. YOUNG, MINISTER OF HEALTH.

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REPORTS.

The DIRECTOR-GENERAL OF HEALTH to the Hon. the MINISTER OF HEALTH, Wellington.

I HAVE the honour to lay before you the annual report of the Department for the year 1931–32.

PART I.—GENERAL SURVEY.

VITAL STATISTICS.

Death-rate.—Despite the tragic earthquake in Hawke's Bay last year, which caused 260 deaths, the crude death rate fell to 8·34 per 1,000 of mean population, a figure which is beaten only by the record low rates in 1924 and 1925.

Birth-rate.—Perhaps one of the least satisfactory features of the statistics is the decline in the birth-rate. This is a progressive and continuing tendency, the rate having declined from 20·29 per 1,000 of mean population in 1927 to 18·42 in 1931. This downward tendency is not peculiar to New Zealand. It is seen in an even more marked extent in Great Britain, where the birth-rate has reached 16·3. Undoubtedly this phenomenon is in part a reflex of the present economic position, and the indications are that the rate will continue to fall still further in New Zealand as the marriage rate for 1931 was lower than at any time for the past quinquenium.

Infant Mortality.—One of the outstanding features of the year was the exceptionally low infant-mortality rate, 32·15 per 1,000 live births. This constitutes a new record. A particularly gratifying

feature of the infant statistics is that the first-month mortality of infants at last appears to be permanently falling to a lower level. In 1927 the infant-mortality rate under one month was 25·83, while in 1931 it was 22·69.

Still-births.—The still-birth rate of 30·4 per 1,000 live births is slightly lower than for the preceding year, when it was 32·3; although, generally speaking, it has not shown much tendency to improve since the figures have been first recorded.

Infectious Diseases.

The number of notifications of infectious and notifiable diseases in 1931 was 5,013, being 2,225 less than for 1930. With the exception of influenza, infectious diseases were in the main marked by their relatively low incidence.

Scarlet Fever.—There was a distinct fall in the prevalence of this disease, 1,304 cases and 11 deaths being recorded as against 2,244 cases and 16 deaths for the previous year. Although the mortality-rate is no longer high, the serious after-effects so often associated with scarlet fever constitute it a serious disease of childhood. During the year the length of the isolation period for scarlet fever was reduced from six weeks to four weeks for cases without complications. The reduction in the isolation period has proved quite satisfactory so far as control of the disease is concerned, besides being of economic benefit.

Diphtheria.—In 1931 1,327 cases of diphtheria with 55 deaths were reported, a further slight decrease on the already low figures for the preceding year. Unfortunately, very little active immunization against diphtheria is being carried out at present, and unless the public avail themselves more widely of this proved preventive we must expect in the course of the next year or two to have further outbreaks of the disease.

Active immunization against diphtheria by the means of toxin anti-toxin was made generally available through the schools of New Zealand in 1924, before which period it had been carried out in only a few selected schools and orphanages. The procedure was not compulsory, but by popular education was being gradually extended until 1929, when as a result of unfortunate accidents reported from abroad it fell temporarily into abeyance. At the end of 1928 it is estimated that a total of approximately 11,500 children attending the public schools had been immunized in this way.

One result of the educational campaign previously carried out is evidenced by the fact that requests for immunization of children have been spontaneously made by parents in areas where the disease has occurred in serious epidemic form. During last year, for instance, 700 children were immunized at the Otahuhu School by anatoxin, while 200 children in a Gisborne school were immunized by toxin anti-toxin. It is intended to extend immunization as opportunity offers, for it is realized that the presence of such a large proportion of susceptibles amongst our pre-school and school population constitutes a most undesirable condition.

Active immunization against diphtheria is preventive work which might well be undertaken by the general practitioner. An attempt has been made at Gisborne by the Medical Officer of Health to initiate such a scheme, with a certain amount of success. The advantage of placing this work in the hands of the general practitioner is that he has more ready access to children of the pre-school age when the susceptibility to diphtheria is most marked.

Enteric Fevers.—Only eight deaths occurred from this group of diseases in the European population. Unfortunately, an outbreak of paratyphoid fever which occurred in one of the wards of the Dunedin Hospital was responsible for fourteen cases and two deaths. Thorough investigation of this outbreak emphasizes the extreme necessity for the observance by the nursing staff of our hospitals of a high standard of aseptic and anti-septic technique. This matter has been brought under the notice of all Medical Superintendents of public hospitals.

Measles and Whooping-cough.—Measles was not responsible for any deaths in 1931, but there was a fairly wide-spread prevalence of whooping-cough, which caused some concern, and was responsible for thirty-six deaths. The Department has endeavoured to educate the public as to the dangers of these diseases of childhood and as to their serious consequences if neglected.

Poliomyelitis, Encephalitis Lethargica, and Cerebro-spinal Fever.—The position was relatively satisfactory in 1931 as regards these three diseases, twenty-five, twelve, and twenty-two cases being notified respectively. In the beginning of the current year, however, poliomyelitis became more widespread, and in next year's report it is intended to give full details of this minor epidemic.

Undulant Fever.—During the year an investigation was made by Dr. F. S. Maclean into the extent of the prevalence of undulant fever in New Zealand. A precis of this officer's report appears in the appendix. This report indicates that close attention is necessary to prevent what may be termed an "occupational disease" of the dairy industry.

Puerperal Fever.—During the past five years there has been a steady reduction in the number of deaths due to puerperal fever, the figures having declined from fifty-six in 1927 to eighteen in 1931. The steadily progressive drop in the death-rate from puerperal fever can be regarded as indicating that the measures taken for the control of this infectious disease by the Department and the medical and nursing professions have been to a great extent effective. Dr. Paget in his report on maternal welfare deals fully with problems associated with child-birth, and, in doing so, presents an interesting graph showing the puerperal death-rates by cause groups.

Tuberculosis.—The death-rate from tuberculosis shows a substantial drop from 4·55 per 10,000 in 1930 to 4·27 in 1931. New Zealand previously had the lowest death-rate from tuberculosis in the world, so that there is every reason to hope that it has maintained this position. Notable progress has been made in providing facilities for treatment of susceptible children in health camps. The active participation in this work by the Wellington Health Camp Association, the Community Sunshine League, Auckland, and other similar organizations has been most praiseworthy. An extensive campaign for the sale of the Christmas Seal stamps was again launched in co-operation with the Post and Telegraph Department, and, in spite of the difficult times, the public generously sub-

scribed. As a result of these activities the Otaki Health Camp has been well established, and at present is doing excellent work. Dr. Ada Paterson in her report deals more fully with this important aspect of preventive work.

Influenza.—There was a sharp outbreak of influenza during the winter months, and, as a result, the death-rate per 10,000 of mean population rose to 1·53 (221 deaths) in comparison with 0·92 (131 deaths) for the previous year. This disease was very general throughout the Dominion. Dr. Turbott, Medical Officer of Health, East Cape District, supplies some interesting comments upon the effect of school closure for influenza, a proceeding adopted by various School Committees in an endeavour to prevent spread of the epidemic. This measure apparently was of no avail, as the time elapsing before normality was regained was 3·6 weeks where schools remained opened as against 4·1 weeks where schools had been closed.

Trichiniasis.—A case of trichiniasis, a disease produced by eating infested pork, was reported by Dr. P. P. Lynch, Pathologist to the Wellington Hospital. The Department of Agriculture made a systematic inspection of the pig-farms of the North Island, and examined in all the muscles of 20,000 carcasses with the satisfactory result that not a single infested animal was found. This appears to be the first recorded case of trichiniasis contracted in New Zealand. Dr. Lynch, in a report on this interesting case appearing in the June, 1932, issue of the *New Zealand Medical Journal*, mentions that Dr. Pearson, Pathologist at the Christchurch Hospital, encountered some years ago an encysted trichinella larva in the thigh muscles of a patient, but in that case there was no clinical evidence of the disease, and it was believed that the actual infestation occurred abroad while the patient was on active service.

Cancer.—There was a slight rise in the mortality from cancer, the number of deaths showing an increase of forty-one, while the death-rate rose from 10·19 per 10,000 to 10·33.

The New Zealand Branch of the British Empire Cancer Campaign Society, now placed on a firm financial basis, is endeavouring through its activities to fight this menace. Dr. A. M. Begg, director of research for the society, in collaboration with his assistant, Mr. Aitken, chemist, has undertaken research work of a varied nature. The reports from the society's four large cancer clinics in the chief centres provide a mass of information, which should in time lead to important conclusions. In the treatment of cancer by specialists. the compilation of information regarding special methods of using radium in certain cases, the education of the public as to value of early treatment, and the following-up of cases, these clinics are performing most valuable functions. It can be definitely said that cancer research in New Zealand is now firmly established.

Venereal Diseases.—The Department occasionally receives requests for an amendment of the Social Hygiene Act and Regulations so as to provide for the compulsory notification by name of all cases of venereal diseases. These requests have not been acceded to, for it is believed that the present law, if fully observed by the medical profession and strictly enforced by the Department, gives all the control over these diseases which is necessary. The present legal provisions briefly are that where a person suffering from venereal disease in a communicable form has failed to attend for treatment as required by his medical attendant the latter must report the facts to the Director-General of Health, giving the full name and address of his patient. The Director-General upon receipt of such notice is then in a position to invoke powers with which he has been armed so as to ensure adequate treatment.

It can be definitely said that the present law has proved equal to the situation in cases where medical practitioners have reported patients as defaulting in treatment. Thus during 1931 forty-two cases were reported to the Department, and of these there was only one instance in which owing to inability to trace the individual concerned, the Department was unable to enforce treatment.

There would be a distinct danger in attempting to exercise such drastic powers as have been suggested. The effect of compulsory notification by name of all cases of venereal disease would be to drive patients to give false names and addresses or to seek treatment at the hands of chemists and unqualified persons. It is to educative rather than to repressive measures we must look for the control of what constitutes as much a social as a medical problem.

Fuller comments on many of the causes of mortality and morbidity will be found in the report of the Director, Division of Public Hygiene.

Administration.

Administration in 1931 was dominated by the need for economy in both national and local government. For some years now the Department has been exercising a close watch over expenditure. As a result, it has been possible to bring about substantial reductions, but it is obvious this process cannot continue indefinitely without endangering the public health. What has been achieved is perhaps best shown in the following table which sets out the net expenditure from vote Health in successive years since 1925–26 :—

Vote Health.	Net Expenditure. £	Vote Health.	Net Expenditure. £
1925–26	264,000	1929–30	247,250
1926–27	251,001	1930–31	244,671
1927–28	246,903	1931–32	199,388
1928–29	239,757		

Public Hygiene.—The most important duties cast upon the Division of Public Hygiene were in connection with the reconstruction work arising out of the earthquake of February, 1931. Problems of magnitude were encountered and successfully solved in respect of water-supplies and drainage in the afflicted areas. It is satisfactory that no serious outbreaks of disease occurred in Napier or Hastings subsequent to the earthquake. Fuller details of the reconstruction work are given in a report by Dr. F. S. Maclean appearing in the Appendix.

School Hygiene.—The percentage of malnutrition among school-children noted during the last year shows a slight increase, and apart from routine work the energies of the School Medical and Nursing Services have been more than ever, during this period of economic depression and distress, directed towards measures for sustaining a satisfactory level of nutrition. Much has been done in the direction of extending the scope of health camps for the reception of delicate and ill-nourished children.

The results of an inquiry into the incidence of cyclical vomiting by Dr. Champtaloup is summarized in the report of the Director, Division of School Hygiene. In co-operation with the Education and Mental Hospitals Departments useful service has been rendered in the supervision of neglected children and in the examination of the mentally backward and feeble-minded. The question of goitre is being kept under constant observation. Preventive treatment for diphtheria has been resumed. The following quotation from the pen of Sir Arthur Newsholme is of more than passing interest:—

> "The value of school medical inspection and the treatment following on it in improving national health is not open to doubt. . . . The outstanding fact is that a vast amount of ignored and neglected disease and defects has been discovered by School Medical Inspectors. Had it not been for this work much of this would have remained undetected and untreated, with serious results in adult inefficiency in life. . . . Any general statement of school work which left out of account that invaluable work of school nurses would be incomplete. They see school-children much oftener than school doctors, they follow up defects found by the latter, and their independent work in treating such minor conditions as impetigo, eczema, sore fingers, and pediculosis, not only increases average school attendance, but also does much to prevent grandular enlargements or more serious diseases."

Nursing.—Miss Lambie, in her first report as Director, Division of Nursing, outlines the various measures taken to improve the standard of nursing in New Zealand. It will be seen that definite progress has been made.

Dental Hygiene.—An attempt has been made to place the scheme for the dental treatment of children on a more satisfactory financial basis by imposing upon local Committees the obligation of finding an additional £30 for each dental nurse employed. The local Committees, generally speaking, have shown their appreciation of the service by finding the money.

The decentralized control made possible by the appointment of four District Dental Superintendents is proving a success, and has not only enabled closer administrative control, but has actually been found to be more economical than the previous system.

Hospitals.—Very close supervision was exercised during the year over hospital expenditure, and Hospital Boards generally showed themselves fully alive to the position and co-operated loyally with the Department in an endeavour to stop every avenue of waste. As a result, hospital maintenance for last year showed a reduction throughout the whole of New Zealand of approximately 14 per cent. as compared with the preceding year.

Prevailing difficulties of finance have been accentuated so far as Hospital Boards are concerned by the widespread distress which not only increased demands for charitable aid, but caused a falling-off of in-patients fees collection.

Chiefly on account of the increase in relief necessitated by unemployment, a net deficiency of approximately £85,000 was incurred by Hospital Boards as a whole. This has to be made good in the current year and, but for the fact that the Boards are as from 1st July being relieved of the duty of granting relief in cases due to unemployment, the situation to be faced would have been one of very acute difficulty.

As it is, the position calls for renewed efforts on the part of Hospital Boards in order that contributions levied upon local authorities and Government subsidy shall be kept within reasonable limits. Estimates submitted for the current year indicate that further substantial savings in hospital expenditure are being aimed at. The Director of the Division of Hospitals in his report indicates some directions in which economies should be sought for.

With the exception of a few hospitals, it is considered there is still scope for reducing the per diem costs of treatment as well as the bed population. There is also a definite movement to close or lease small hospitals which often prove themselves relatively very costly when run by public authorities. Actual experience shows that as an alternative to closing a small hospital an arrangement by which it is leased to a qualified person with an annual grant in respect of indigent patients is an economical and satisfactory one.

The Department is still pursuing the policy of having charges for maintenance and treatment raised to approach the cost, and there has been further improvement during the year just closed. Several Boards have, however, shown themselves opposed to the policy, and it is proposed, where necessary, to invoke the provisions of section 80 of the Hospitals and Charitable Institutions Act, under which an adequate scale of fees may be fixed. It has been emphasized that an inadequate scale of charges for public hospitals virtually admitting all classes of patients not only conflicts with the principle under which Hospital Boards are financed from local rates and general taxation, but constitutes unfair competition with private hospitals and in a measure establishes a vicious circle as private enterprise finds fewer and fewer patients to deal with.

Full statistical and financial information with regard to hospitals and institutions under the control of Boards will be published as a special appendix to this report at a later date when the returns from Boards' secretaries are all to hand.

Maori Hygiene.—The birth-rate and death-rate amongst Maoris—33·74 and 14·81 per 1,000 of population respectively—are much in excess of the rates amongst Europeans. The excess of births over deaths, however, has during the past three years given the Maori a highly satisfactory natural increase.

The Maori infantile-mortality rate of 95·59 is unfortunately much higher than the European rate. It is disappointing to note that the comparatively low figure reached in 1929 was not maintained in the two succeeding years. During the year under review circulars on this subject were sent to all

District Health nurses, mission workers, and all other bodies and persons known to be interested in the welfare of the Maori race in order to impress on the Maori people the necessity of proper feeding and care of infants.

The death-rate from puerperal causes was 6·92 per 1,000 live births, which again is all too high. Here also the greatest difficulty to be contended with is lack of knowledge on the part of the Maori people. District nurses are giving valuable aid in this respect. With the advance of years the objection of the Maori people to hospital treatment will no doubt be overcome, and the number of confinements conducted in hospitals will increase with, it is hoped, a consequent reduction in the maternal death-rate.

Fortunately there have been no serious outbreaks of typhoid and bacillary dysentery during the year. The death-rates per 10,000 from these groups of diseases for 1931 were 2·04 and 1·17 respectively.

The ravages of respiratory diseases are still causing much concern. For the year 1931 the total deaths from all forms of respiratory diseases were 1,015, a rate of 148·14 per 10,000 of population. or 43 per cent. of the total of all Maori deaths. Of the 1,015 deaths referred to 128 were caused by various forms of pneumonia, 41 by influenza, and 222 by pulmonary tuberculosis. The greatest obstacles in combating pulmonary tuberculosis among Maoris are: Firstly, the difficulty of getting the patents under early medical treatment, and, secondly, the difficulty of ensuring suitable housing and proper feeding for the Maori people as a whole.

The death-rate from cancer compares more than favourably with the general New Zealand rate. The total number of deaths amongst Maoris from this cause for 1931 was 21, giving a death-rate of 3·07 per 10,000 of population, whereas the general New Zealand rate for the same period was 10·33.

During the year the Arapawa Maori Council, which has not been functioning since 1915, was reorganized and gives every promise of continuing as an active force. The majority of the other councils still continue to function in an active and efficient manner. Special mention might be made of the activities of the following Councils: Mangonui, Hokianga, Pewhairangi (Bay of Islands), Matatua (Bay of Plenty), Maniopoto (King-country), Whanganui, Kahungunu (Wairoa), and Arapawa (Blenheim).

Health Education.—The triumph of sanitary science over environmental conditions and to a large extent over many of the communicable diseases is recognized. Still, on the other hand, when we survey the mortality arising from cancer, kidney-diseases, heart trouble, apoplexy, and other organic diseases during the early years and prime of life, it is evident that there is a vast wastage of valuable human life. One important means of preventing in some measure this annual loss is by widespread education of the public in health matters. During the past year considerable attention, therefore, has been centred on this important function of the Department. Pamphlets on cancer and the infectious diseases have been widely distributed. Health articles covering many subjects of public-health interest have been supplied to the press, and educational talks broadcast through the courtesy of the Broadcasting Board. Addresses have been delivered by officers to various organizations, and papers contributed at meetings of the New Zealand Branch of the British Medical Association.

Boards associated with Department.—The various Boards associated with the Department have continued their work during the year under review. I refer to the Board of Health, the Medical Council, Plumbers Board, the Masseurs Registration Board, the Opticians Board, and the Nurses and Midwives Registration Board.

Reference to the work of the last-mentioned Board will be found in the report of the Director, Division of Nursing.

The usual practice in the past has been for quarterly meetings of these Boards to be held. Owing to the need for economy and the shrinkage in the amount of work requiring attention, some of the Boards have postponed some of their regular meetings. The smoothness with which these bodies perform their functions is a testimony to their wise and efficient personnel.

Staff.

I regret to record the death of Mr. H. W. Lambert and Mr. J. Annan, two officers who rendered loyal service to the Department.

Drs. H. Chesson, W. B. Mercer, H. J. C. Wilkie, R. Collier, J. N. Keith, Mr. L. M. Shera, and Mr. E. Middleton retired on superannuation after years of able service.

Before concluding it is fitting that I should refer in more detail to two other officers whose services have been lost to us.

By the retirement of Dr. Henry Jellett, the Dominion was deprived of the service of an officer who took a prominent part in framing the departmental policy for the promotion of maternal welfare, and who can justly claim to share in the credit for the improvements which have been effected in the Dominion in this sphere of public health. Dr. Jellett, in leaving the Department, has the satisfaction of knowing that the work with which he had been associated is now on a sound footing. His masterly reports will ever remain a source of guidance and inspiration.

Dr. Makgill is another officer whose retirement is chronicled with great regret. Dr. Makgill has an unequalled knowledge of New Zealand conditions. For the last twenty-nine years, interrupted only by war service, he has been actively employed in public-health administration both as a Medical Officer of Health in the field and as Consultant attached to Head Office. To his task he brought to bear a high degree of technical knowledge, mastery of detail, and outstanding administrative ability. The Health Act, 1920, and much of our Food and Drugs Regulations, to quote but two instances, are a permanent record of Dr. Makgill's work.

In conclusion, I wish to express thanks for the support rendered me by officers of the Department during the year.

M. H. Watt, Director-General of Health.

PART II.—PUBLIC HYGIENE.

I have the honour to submit my annual report for the year ended 31st March, 1932. It is necessarily brief and devoid of graphs, owing to need of economy.

SECTION I.—VITAL STATISTICS.

POPULATION.

The mean population of the Dominion for 1931 (exclusive of Maoris) was estimated to be 1,444,901. This total represents an increase over the corresponding figure for the previous year of 19,817, or a percentage increase of population of 1·39.

BIRTHS.

The births of 26,622 living children were registered in the Dominion during 1931, as against 26,797 in 1930. The birth-rate for 1931 was thus 18·42 per 1,000 of mean population. The general course of the birth-rate during the last five years is shown in the following table:—

Births (Number and Rate) in New Zealand, 1927–1931.

Year.	Total Number of Births registered.	Birth-rate per 1,000 of Mean Population.
1927	27,881	20·29
1928	27,200	19·56
1929	26,747	19·01
1930	26,797	18·80
1931	26,622	18·42

The birth-rate steadily declines. There were 26,622 births for a population of 1,444,901 and there were 12,047 deaths, the difference or natural increase being 14,575 persons, or 1·0 per cent. only of the total population. Back in 1870 the natural increase was 3·1 per cent.

DEATHS.

The total number of deaths (12,047) registered during the year 1931, as compared with 12,199 in 1930, shows a decrease of 152.

Crude Death-rates.

Year.	Crude Death-rate per 1,000 Mean Population.	Year.	Crude Death-rate per 1,000 Mean Population.
1927	8·45	1930	8·56
1928	8·49	1931	8·34
1929	8·75		

New Zealand has a very low general death-rate, but, owing to the steadily reducing birth-rate, her annual natural increase of population is only 1·0 per cent.

STILL-BIRTHS.

Still-births, which are defined by the Births and Deaths Registration Act of 1924 as "children which have issued from their mother after the expiration of the twenty-eighth week of pregnancy, and which were not alive at the time of such issue," are compulsorily registrable in the Dominion. The next table shows the number of such births and their rate per 1,000 live births in individual years for the quinquennium 1927–1931.

Still-births (Number and Rate) in New Zealand, 1927–1931.

Year.	Total Number of Still-births registered.	Rate of Still-births per 1,000 Live-births.
1927	878	31·5
1928	839	30·8
1929	870	32·5
1930	865	32·3
1931	809	30·4

There was a reduction in the still-birth rate this year, and further on will be seen a reduction also in the death-rate of infants under one week of age.

(NOTE.—Still-births are not included, either as births or deaths in the various numbers and rates given elsewhere in this report.)

THE PRINCIPAL CAUSES OF DEATH.

The following table gives the main causes of deaths last year in their order of magnitude, and the actual number of deaths therefrom.

TOTAL DEATHS IN NEW ZEALAND IN 1931, 12,047.

Causes.		Actual Deaths.
Heart-disease (all forms)		2,817
Cancer		1,493
Violence		1,165
Chest-disease—		
Pneumonia	326	
Pneumonia secondary to influenza, whooping-cough, and measles	140	
Bronchitis	203	
Broncho-pneumonia	180	
		849
Apoplexy or cerebral hæmorrhage		634
Tuberculosis (all forms)		617
Kidney or Bright's disease		579
Senility		427
Disease of the arteries		420
Diabetes		227
Diseases and accidents of child-birth (*i.e.*, maternal mortality)		127
Appendicitis		105
Hernia and intestinal obstruction		84
Diarrhœa and enteritis		74
Epilepsy		55
Common Infectious Diseases.		
Influenza (all forms including pneumonic)		221
Diphtheria		55
Whooping-cough		36
Scarlet fever		11
Typhoid fever		8
Measles		..
Infant Mortality.		
Infant deaths (under one year), all causes		856

For several years now the principal causes of death have been thus tabulated. The year 1931, compared with 1930, gave in round numbers 150 fewer deaths in a population increased by 20,000. This reduction is accounted for mainly by a lowered infantile mortality and in respect of older persons a lower rate from chest diseases and from all forms of tuberculosis, whereas there was an increased rate from influenza, accident, and suicide.

An outstanding feature noteworthy over many years is that the death-rates from the common infectious diseases appear to show a steady and definite reduction. The greatest example is typhoid fever. A five-year average taken fifty years ago gave a mortality more than forty times that for the five years ending in 1931. We still experience epidemics of scarlet fever, diphtheria, measles, and whooping-cough, but these epidemics give an annual death-rate very much lower than that experienced in former epidemics, while in the intervening non-epidemic years the sporadic cases have assumed a milder type and give a reduced death-rate. Tuberculosis also displays this very markedly over a fifty-year period, the death-rate per 10,000 of mean population in 1881 having been 13·8 compared with 4·27 in 1931, a threefold reduction. In the last six years the death-rate from this disease per 10,000 of mean population has been reduced from 5·37 to 4·27.

As is well known, the infantile death-rate of New Zealand (made up of infant deaths from all causes) has been very greatly reduced, and during recent years infants under one month of age are sharing in this lessened mortality.

These reductions are so great and so sustained that one is forced to the conclusion that good environment (to use a comprehensive term which includes measures taken to improve diet and hygiene) is steadily removing these diseases. This same tendency in lesser degree is noticeable in the vital statistics of closely populated England and is coincident in both countries with improving nutritional and hygienic conditions, including welfare measures directed mainly to those in special need of guidance or protection. The thought then arises, despite the prophesies of certain epidemiologists who, on historical grounds, predict a recurrence of high infectious disease virulence and mortality and perhaps undervalue the influence of improved environment, and those of immunologists who regard the subject as essentially one of acquired immunity, whether or not New Zealand and even closely populated England can by the maintenance or even the improvement of a good environment retain the *natural resistance of their peoples to these diseases.*

The Dominion is now unfortunately experiencing a period of want and poverty, and, pending necessary adjustments, there will be some overcrowding of persons in dwellings. Doubtless this will in some measure mar our vital statistics, but such effect is not yet noticeable. It is to be hoped that restoration of the economic balance can be achieved in order that the beneficient influence over many years of steady improvement in the nutrition and the hygienic environment of the poorer people will not be greatly lessened.

Suicides.—A noteworthy sign of the times we live in is that last year the number of deaths from suicide increased to 226 from 193 in 1930.

THE PRINCIPAL CAUSES OF DEATH ITEMIZED.

Cause.	Year.			
	1928.	1929.	1930.	1931.
Heart-diseases (all forms)	2,315	2,533	2,897	2,817
Apoplexy or cerebral hæmorrhage ..	643	634	659	634
Diseases of the arteries	394	428	432	420
Totals	3,352	3,595	3,988	3,871

It is again noteworthy that these diseases of the heart and arteries accounted for 3,871 deaths—*i.e.*, 32 per cent. of the total deaths during the year. In 1928 they accounted for 28 per cent., in 1929 29 per cent., and in 1930 32 per cent. of the total.

This, by reason of its magnitude and increasing tendency, appears to present a field worthy of special investigation by the Department and the medical profession. Certain infectious and other diseases such as scarlet fever, diphtheria, and acute rheumatism, and syphilis are known to sometimes affect the heart and blood-vessels, but their potency and influence has definitely waned.

Again, some may regard deaths from these diseases as the inevitable results of fair wear-and-tear, but analysis shows that during the three years ending 1930, of an approximate total of 11,000 deaths in New Zealand from these causes 2,500 occurred before the age of sixty had been reached, 1,100 before age fifty, and 500 before age forty.

These diseases, then, not only shorten life, but stand out as the main blot on a clearing horizon. Medical attention to individual patients (usually middle-aged or older persons) does by means of detection of arterio-sclerosis, high blood-pressure, or heart incompetency, and the alteration of habits including dietary, lengthen their lives, but by co-operative effort in a wider field, commencing at an earlier age and an endeavour to ascertain the fundamental causes of these very common diseases of the heart and blood-vessels it seems possible that longevity could be increased.

Cancer, another important cause of death, is regarded by many as a disease of civilization. If this be true, then the necessary correction of the human errors which predispose to cancer will probably prove to be neither a short nor a simple task. There are, in fact, very few examples in medical history of any disease having been eradicated by rapid cure, and in respect of these diseases of the heart and blood-vessels it may be said with greater force than is true of cancer that the results of early diagnosis and medical attention to individual cases appear to justify a wider and earlier application of the process. Moreover, the very fact that our knowledge of the causes of arterio-sclerosis and of many forms of heart-disease is scanty, itself points to the need of special investigation. The number of annual deaths involved is such as to offer a margin of gain worth the effort.

CANCER, 1,493.

The following table, taken from the "New Zealand Official Year Book," shows the cancer death rate in the Dominion for the last five years:—

Number of Persons who died from Cancer, the Proportion per 10,000 Persons living, and the Percentage of all Deaths, 1927–31.

Year.	Deaths from Cancer.	Total Deaths, all Causes.	Deaths from Cancer per 10,000 of Living Persons.	Deaths from Cancer per 100 of all Deaths.
1927	1,324	11,613	9·63	11·40
1928	1,374	11,811	9·87	11·63
1929	1,467	12,314	10·43	11·91
1930	1,452	12,199	10·19	11·90
1931	1,493	12,047	10·33	12·39

We know not the cause of cancer. It is increasing in prevalence at a slow, not rapid, rate. Being a disease of late life, and having in the past often missed detection or registration, its apparent increase is in considerable measure accounted for by our longer span of life and greater skill in diagnosis. The real increase is slight.

It has always been an important cause of death, but results show that nowadays submission to skilled treatment at an early stage is worth while. Particularly after the age of thirty-five we should seek medical examination for any unusual condition which might be cancer.

VIOLENCE, 1,165.

Violence has now assumed third place as a cause of deaths in New Zealand; 926 of these deaths were due to accident, 226 to suicide, and 13 to homicide. The number of deaths from suicide increased from 193 in 1930 to 226 last year.

In the last five years the number of deaths annually from motor-vehicle accidents has averaged 174

CHEST-DISEASES, 849.

Pneumonia	326
Pneumonia secondary to influenza, whooping-cough, and measles ..	140
Broncho-pneumonia	180
Bronchitis	203
	849

There is reason to believe that many of these deaths could be prevented. In some countries the experiment has been tried of making every pneumonia case compulsorily notifiable, and attempting isolation. Apparently the results achieved have not justified the expense and trouble thereby involved, but the fact remains that probably a large proportion of these illnesses are infectious. All associated with epidemics of influenza, measles, whooping-cough, or diphtheria, certainly are. Again, when in the absence of a recognized outbreak of such common infectious diseases, groups of pneumonia or broncho-pneumonia cases occur, in a community, affecting in considerable measures virile young adults, adolescents, and children, of which it can be said the infecting agent is virulent, then measures can be taken which give promise of considerably reducing the death-rate from these lung-ailments. Such measures are complete case-isolation to be practised by doctor and nurse, and convalescents to be restrained from close contact with other persons, attendance at indoor public gatherings. &c., until they have completely recovered.

TUBERCULOSIS (ALL FORMS), 617.

The following table indicates the course of this disease since 1926 :—

Year.	Number of Deaths from Tuberculosis.	Death-rate from Tuberculosis per 10,000 of Mean Population.	Year.	Number of Deaths from Tuberculosis.	Death-rate from Tuberculosis per 10,000 of Mean Population.
1926 ..	727	5·37	1929 ..	642	4·56
1927 ..	668	4·86	1930 ..	649	4·55
1928 ..	699	5·02	1931 ..	617	4·27

New Zealand has the lowest death-rate from tuberculosis in the world. In common with many other countries, including Great Britain, it has steadily reduced in the last half-century. This year's rate is remarkably low. Tuberculosis, however, still takes sixth place as a cause of death in New Zealand, and disables temporarily or permanently many more than it kills.

Of 617 deaths from tuberculosis last year, 501 were assigned to pulmonary tuberculosis, and 116 to other forms of this disease, comprising tuberculosis meningitis and peritonitis, and tuberculosis of the bones, joints, glands, &c.

Pulmonary Tuberculosis.

The pulmonary cases are regarded by most authorities as conveyed from human sources. There were 1,109 notifications of fresh cases during the year.

Other Forms of Tuberculosis.

The 116 deaths last year from other forms of tuberculosis were made up as follows :—

Tuberculosis of meninges and central nervous system	52
Tuberculosis of intestines and peritoneum	15
Tuberculosis of vertebral column	13
Tuberculosis of bones and joints	4
Tuberculosis of skin and subcutaneous cellular tissue	..
Tuberculosis of lymphatic system	..
Tuberculosis of genito-urinary system	13
Tuberculosis of other organs	1
Disseminated tuberculosis	18
	116

A small proportion only of these latter deaths, particularly those of children, are deemed by recognized authorities to be possibly due to infection from the cow, and bacteriological tests of milk-supplies in New Zealand have shown the milk-supply to be remarkably free from bovine tubercle.

KIDNEY OR BRIGHT'S DISEASE, 579.

Since 1900, unlike heart-disease, apoplexy, and diseases of the arteries, the death-rate from which have greatly increased, that from kidney or Bright's disease has shown little variation.

DIABETES, 227.

There has been little variation in the death-rate from diabetes in recent years.

MATERNAL MORTALITY.

The questions of maternal mortality and diseases and accidents of childbirth are dealt with fully in the report on maternal welfare by my colleague, Dr. Paget.

SECTION 2.—THE COMMON INFECTIOUS DISEASES.

Influenza (all Forms), 221.

Number of Deaths from Influenza in New Zealand, 1927–31.

Year.	Number.	Year.	Number.
1927	131	1930	131
1928	242	1931	221
1929	297		

Pneumonic Influenza.

Pneumonic influenza, the deaths from which are included in "Influenza (all forms)," is a form of influenza which is compulsorily notifiable.

Pneumonic Influenza in New Zealand, 1927–31.

Year.	Deaths.	
	Number.	Rate per 10,000 of Mean Population.
1927	43	0·31
1928	100	0·72
1929	120	0·85
1930	66	0·46
1931	121	0·84

Diphtheria, 55.

Diphtheria in New Zealand, 1927–31.

Year.	Notifications.		Deaths.*	
	Number.	Rate per 10,000 of Mean Population.	Number.	Rate per 10,000 of Mean Population.
1927	1,446	10·52	58	0·42
1928	1,600	11·51	72	0·52
1929	1,687	11·99	92	0·65
1930	1,440	10·10	58	0·41
1931	1,327	9·18	55	0·38

* Figures include deaths from croup.

Scarlet Fever, 11.

The course of scarlet fever in New Zealand is briefly shown in the table below :—

Scarlet Fever in New Zealand, 1927–31.

Year.	Notifications.		Deaths.	
	Number.	Rate per 10,000 of Mean Population.	Number.	Rate per 10,000 of Mean Population.
1927	2,185	15·89	16	0·12
1928	6,127	44·06	55	0·40
1929	4,848	34·46	27	0·19
1930	2,244	15·75	16	0·11
1931	1,304	9·02	11	0·08

We have experienced an epidemic period of more than two years duration, but the death-rate was low in comparison with that of former epidemics.

Whooping-cough, 36 ; Measles, Nil.

Neither of these two diseases is compulsorily notifiable. Whooping-cough was prevalent, but the number of deaths caused thereby was low in comparison with former epidemics.

TYPHOID OR ENTERIC FEVER, 8.

The position as regards this disease for the period 1927–31 is shown in the table below :—

Enteric Fever in New Zealand, 1927–31.

Year.	Notifications.		Deaths.	
	Number.	Rate per 10,000 of Mean Population.	Number.	Rate per 10,000 of Mean Population.
1927	270	1·96	11	0·08
1928	290	2·09	16	0·12
1929	278	1·98	22	0·16
1930	149	1·04	7	0·05
1931	161	1·11	8	0·06

It is also of interest to state that the death-rate from typhoid fever (average) for the last five years was approximately forty times less than a similar average taken fifty years ago.

SECTION 3.

INFANT MORTALITY, 856.

The infant-mortality rate for 1931 was 32·15 per 1,000 births.

Infant Mortality in New Zealand, 1927–31 (per 1,000 live Births).

Year.	Under One Month.	One Month and under Twelve Months.	Total under Twelve Months.	Year.	Under One Month.	One Month and under Twelve Months.	Total under Twelve Months.
1927 ..	25·83	12·91	38·74	1930 ..	24·03	10·45	34·48
1928 ..	25·41	10·77	36·18	1931 ..	22·69	9·46	32·54
1929 ..	23·26	10·84	34·10				

It will be seen from the above table that there was a substantial reduction last year in the death-rate of infants, and those under one month of age shared in this reduction.

Analysis of Deaths of Infants under One Month of Age, 1931.

The following table gives the causes of these deaths during the year :—

Cause of Death.	Under One Day.	One Day and under One Week.	One Week and under Two Weeks.	Two Weeks and under Three Weeks.	Three Weeks and under One Month.	Total.
Influenza	..	..	..	..	..	..
Syphilis	..	..	1	..	2	3
Meningitis	..	..	..	..	..	..
Convulsions	..	3	2	..	..	5
Broncho-pneumonia	1	4	4	2	2	13
Pneumonia	..	2	2	..	..	4
Diarrhœa and enteritis	..	..	..	2	3	5
Congenital malformations	17	41	13	5	2	78
Congenital debility	5	9	7	3	..	24
Injury at birth	20	47	6	4	1	78
Premature birth	121	120	23	15	7	286
Other diseases	21	38	10	3	..	72
Accidental mechanical suffocation ..	1	..	..	1	..	2
Other causes	4	17	5	4	4	34
Totals, 1931	190	281	73	39	21	604
Totals, 1930	224	288	74	35	23	644

Thus 471 of a total of 604 infant deaths in the first month of life occurred during the first week, and may be regarded as mainly due to pre-natal influences. It is also of interest to record that well over half of the infant deaths (in the first twelve months of life) occurred in this first week—*i.e.*, 471 in a total of 856.

TABLE A.—NOTIFIABLE DISEASES IN NEW ZEALAND, 1931, SHOWING DISTRIBUTION BY MONTHS.

Month.	Scarlet Fever.	Diphtheria.	Enteric Fever.	Tuberculosis.	Cerebro-spinal Meningitis.	Poliomyelitis.	Influenza.	Erysipelas.	Puerperal Fever.		Eclampsia.	Tetanus.	Hydatids.	Trachoma.	Ophthalmia Neonatorum.	Lethargic Encephalitis.	Food Poisoning.	Bacillary Dysentery.	Leprosy.	Undulant Fever.	Actinomycosis.	Anthrax.	Beriberi.	Chronic Lead Poisoning.	Totals.
									Ordinary.	Following Abortion or Miscarriage.															
January	85	57	21	92	2	2	3	22	11	20	7	6	5	..	7	2	5	..	..	2	..	..	..	..	349
February	109	62	13	96	..	1	..	13	13	17	10	4	7	..	1	2	..	4	..	..	..	..	..	..	352
March	101	106	17	96	1	2	2	23	22	15	6	2	3	..	2	2	..	8	..	..	..	1	..	..	409
April	127	126	8	90	2	1	1	17	9	12	7	1	3	1	4	..	1	4	..	1	..	..	..	1	416
May	127	163	11	76	3	..	5	22	10	2	5	..	8	1	2	..	..	3	..	1	..	..	..	..	439
June	118	119	9	74	2	1	3	33	12	7	5	1	3	1	2	1	..	6	..	1	..	..	..	..	398
July	121	120	17	95	4	4	5	21	16	16	11	1	6	1	1	1	..	..	..	1	..	..	..	..	441
August	125	184	6	81	1	2	4	22	15	6	8	..	5	..	3	..	..	..	..	..	..	..	..	..	462
September ..	107	108	9	113	1	3	103	14	15	7	5	..	3	..	3	2	..	4	1	1	..	..	..	..	499
October	101	74	11	113	2	4	96	24	16	10	12	..	4	3	1	..	1	1	..	3	1	..	1	..	478
November	76	84	12	94	2	4	16	14	8	14	6	4	8	..	2	2	13	..	..	1	..	..	..	..	360
December	107	124	27	89	2	1	9	8	13	7	2	2	4	2	5	..	4	1	..	2	..	..	..	1	410
Totals ..	1,304	1,327	161	1,109	22	25	247	233	160	133	84	21	59	9	33	12	24	31	1	13	1	1	1	2	5,013

TABLE B.—NOTIFICATIONS OF CASES OF NOTIFIABLE DISEASES FOR YEAR ENDED 31ST DECEMBER, 1931.

Name of Disease.	North Auckland.	Central Auckland.	South Auckland.	Thames-Tauranga.	Taranaki.	East Cape.	Wanganui-Horowhenua.	Wairarapa-Hawke's Bay.	Central Wellington.	Nelson-Marlborough.	Canterbury.	West Coast.	Otago.	Southland.	Totals.
Scarlet fever	31	91	64	12	37	12	61	58	138	18	305	33	284	160	1,304
Diphtheria	41	221	193	49	144	28	123	35	126	32	133	103	96	3	1,327
Enteric fever	13	26	27	3	2	17	5	19	3	6	14	6	20	..	161
Tuberculosis	77	191	58	32	39	31	41	45	139	34	222	18	125	57	1,109
Cerebro-spinal meningitis	1	5	1	2	3	..	2	2	1	2	3	..	..	..	22
Poliomyelitis	4	3	..	1	1	2	1	2	..	..	1	..	8	2	25
Influenza	5	29	9	3	36	10	15	39	20	4	61	3	12	1	247
Erysipelas	11	60	26	2	3	6	9	11	40	1	44	7	12	1	233
Puerperal fever—															
Ordinary	9	23	15	3	6	6	15	11	13	2	31	5	13	8	160
Following abortion or miscarriage	11	69	3	2	..	1	4	1	3	1	30	2	6	..	133
Eclampsia	4	17	7	2	3	1	2	9	11	2	9	4	7	6	84
Tetanus	2	4	4	1	1	..	..	1	1	1	4	..	1	1	21
Hydatids	..	1	..	..	5	6	5	2	2	..	23	..	14	1	59
Trachoma	..	2	5	..	..	..	..	..	2	..	..	..	..	..	9
Ophthalmia neonatorum	2	8	1	..	..	1	2	..	4	4	8	1	2	..	33
Lethargic encephalitis	..	2	..	..	..	..	..	1	4	..	3	..	1	1	12
Food poisoning	11	4	..	..	4	..	..	1	1	..	3	..	..	..	24
Bacillary dysentery	1	14	10	1	..	4	1	..	..	..	..	..	..	..	31
Leprosy	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1
Undulant fever	..	2	8	..	..	..	2	..	..	..	1	..	..	..	13
Actinomycosis	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1
Anthrax	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1
Beriberi	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1
Chronic poisoning (lead)	..	..	..	..	..	..	..	..	1	..	1	..	..	..	2
Totals	223	774	431	113	284	125	288	238	510	107	896	182	601	241	5,013

TABLE C.—NOTIFIABLE DISEASES IN NEW ZEALAND, 1931, SHOWING DISTRIBUTION BY AGE AND SEX.

Disease.	Under 1 Year.		1 to 5 Years.		5 to 10 Years.		10 to 15 Years.		15 to 20 Years.		20 to 25 Years.		25 to 30 Years.		30 to 35 Years.		35 to 40 Years.		40 to 45 Years.		45 to 50 Years.		50 to 55 Years.		55 to 60 Years.		60 to 65 Years.		65 to 70 Years.		70 to 75 Years.		75 to 80 Years.		80 Years and over.		Total Cases at all Ages.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Scarlet fever	7	4	161	190	200	286	67	109	33	53	12	54	12	24	5	27	6	21	6	8	5	5	..	..	2	4	1	1	..	..	..	..	1	..	..	..	518	786
Diphtheria	13	3	189	156	278	255	90	94	20	54	19	41	10	24	8	27	6	14	2	14	1	5	2	..	..	..	..	..	1	1	..	..	..	..	..	..	639	688
Enteric fever	..	..	5	4	8	13	11	10	17	18	10	8	8	4	7	5	3	3	6	5	3	4	..	2	3	4	..	..	..	..	..	..	..	..	..	..	81	80
Tuberculosis	..	..	5	5	15	14	20	32	44	94	82	142	73	109	64	64	48	43	48	26	40	22	23	11	22	13	22	9	9	1	4	1	2	1	..	1	521	588
Cerebro-spinal meningitis..	4	2	4	3	1	1	1	..	..	1	1	..	1	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13	9
Poliomyelitis	..	1	4	6	4	4	2	3	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11	14
Puerperal fever—																																						
Ordinary	..	..	..	..	..	..	..	..	..	24	..	32	..	46	..	34	..	16	..	6	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	160
Following abortion or miscarriage	..	..	..	..	..	..	..	..	..	7	..	25	..	34	..	40	..	19	..	6	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	133
Eclampsia	..	..	..	..	..	..	..	..	..	9	..	17	..	23	..	18	..	10	..	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	84
Erysipelas	3	1	6	3	2	2	1	3	2	4	2	7	4	11	7	13	7	17	13	15	6	23	17	17	4	8	4	6	6	6	3	3	..	2	1	4	88	145
Ophthalmia neonatorum ..	19	14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	19	14
Influenza	1	1	10	6	7	5	8	5	13	5	10	16	9	11	18	10	9	13	8	6	14	15	11	1	7	4	4	3	2	3	1	2	3	1	4	1	139	108
Lethargic encephalitis ..	..	..	..	1	..	..	1	..	1	2	..	..	1	..	..	2	..	..	1	..	1	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	7	5
Trachoma	..	..	..	..	..	1	..	..	1	..	..	1	..	..	..	..	2	..	..	..	3	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	7	2
Hydatids	..	..	1	..	1	..	1	..	4	2	3	2	1	6	2	2	2	3	8	1	3	2	4	1	2	1	2	1	2	..	1	..	..	..	..	1	37	22
Tetanus	..	1	5	1	2	1	3	2	1	1	..	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	14	7
Bacillary dysentery ..	..	..	4	3	4	1	..	..	..	1	1	1	2	..	..	2	1	1	1	1	1	1	1	1	1	2	..	1	..	..	..	..	..	..	..	..	16	15
Actinomycosis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..
Food poisoning	..	..	..	..	1	..	1	..	2	1	1	3	1	1	1	1	1	2	..	1	2	2	..	..	..	..	..	..	1	1	..	1	..	..	..	..	11	13
Leprosy	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Undulant fever	..	..	..	..	..	1	..	..	2	..	1	..	4	..	1	..	..	..	..	..	1	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	10	3
Anthrax	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Beriberi	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Chronic lead poisoning ..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	2	..
Totals	47	27	384	378	523	585	206	258	140	276	143	349	129	293	115	247	86	162	94	96	81	83	60	33	43	38	34	22	22	12	9	7	6	4	5	7	2,127	2,876

TABLE D.—VENEREAL-DISEASES CLINICS.—CASES TREATED DURING THE YEAR ENDED 31ST DECEMBER, 1931.

—	Auckland.		Wellington.		Christchurch.		Dunedin.		Totals.	
Number of persons dealt with at or in connection with the out-patient clinic for the first time and found to be suffering from—	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Syphilis	167	62	75	44	22	9	26	13	290	128
Soft sore	9	..	17	..	4	..	..	..	30	..
Gonorrhœa	572	137	335	86	279	88	78	52	1,264	363
No venereal disease	118	47	66	42	25	9	14	9	223	107
Total attendance of all persons at the out-patient clinics who were suffering from—										
Syphilis	2,236	1,113	2,516	1,209	1,002	713	1,076	773	6,830	3,808
Soft sore	131	..	74	..	36	..	..	..	241	..
Gonorrhœa	18,385	1,678	16,650	2,561	8,466	4,389	4,332	3,172	47,833	11,800
No venereal disease	..	..	174	72	85	21	21	7	280	100
Aggregate number of in-patient days of treatment given to persons suffering from—										
Syphilis	694	341	370	..	..	..	..	..	1,064	341
Gonorrhœa	1,451	456	2,519	..	..	..	..	..	3,970	456

A comparison of this table with that for last year (1930) shows that at the Auckland clinic there was an increase in new cases of syphilis of seventy-eight for the year and at the Wellington clinic seventy. This is an unpleasant fact, and the Medical Officers of Health are endeavouring to ascertain the cause of this increase. As conjectures it is possible that owing to straightened circumstances a greater proportion of sufferers, some of whom formerly went to private practitioners, &c., now attend the public clinics, or it may be that one of the effects of the depression is to increase the incidence of venereal disease. These clinics commenced operations in 1919. In an endeavour to gauge the significance of this apparent increase I have tabulated hereunder the annual attendances at public clinics (whole Dominion) of new cases of syphilis and of gonorrhœa commencing with the year 1922, by which time these public clinics were in full swing and the immediate effects of the war may be said to have passed.

Year.	Persons attending Public Clinics in New Zealand for the first time, and found to be suffering from			
	Gonorrhœa.		Syphilis.	
	Number.	Rate per 1,000 of Mean Population.	Number.	Rate per 1,000 of Mean Population.
1922	1,039	0·83	399	0·32
1923	986	0·77	323	0·25
1924	1,129	0·87	240	0·18
1925	1,176	0·88	255	0·19
1926	1,454	1·07	268	0·20
1927	1,584	1·15	245	0·18
1928	1,617	1·16	220	0·16
1929	1,855	1·32	308	0·22
1930	1,789	1·26	269	0·19
1931	1,617	1·12	418	0·29

This table shows for new cases of syphilis that expressed as a rate per 1,000 of mean population the peak year was 1922, but last year there was a sharp rise in incidence. In respect of gonorrhœa there has been a progressive increase from 1922, reaching its peak in 1929, since when the position has eased somewhat. The social conditions of the people (late marriages, &c.), and the serious effects of these two diseases are such that neither the Department nor the Hospital Boards can afford to view an increase in incidence with equanimity.

SECTION 4.—NUMBER OF VESSELS INSPECTED DURING THE YEAR ENDED 31ST DECEMBER, 1931.

Port.	Number of Vessels inspected.	Prohibited Immigrants.	Infectious-disease Cases.	V.D. Cases.	Infirm Cases.
Combined Auckland Health District—					
Auckland	317	193	..	..	..
Opua	1	..	..	..	..
Taranaki Health District—					
New Plymouth	16	..	..	..	..
East Cape Health District—					
Gisborne	1	..	..	..	..
Combined Wellington Health District—					
Wellington	148	..	11	10	18
Wanganui	5	..	..	..	..
Napier	6	..	..	..	..
Nelson	1	..	..	..	..
Picton	2	..	..	..	..
Waikokopu	1	..	..	..	..
Combined Canterbury Health District—					
Lyttelton	22	..	1	..	..
Timaru	..	..	..	..	..
Greymouth	1	..	..	..	..
Westport	3	..	..	..	..
Combined Otago Health District—					
Oamaru	1	..	..	..	..
Port Chalmers	19	..	..	..	..
Bluff	42	..	..	..	..
Totals	586	193	12	10	18

SECTION 5.—WORKING OF THE SALE OF FOOD AND DRUGS ACT.

TABLE 1.—SHOWING SAMPLES RESPECTIVELY OF MILK AND OTHER FOODSTUFFS TAKEN AND DEALT WITH DURING THE YEAR ENDED 31ST DECEMBER, 1931.

Health District.	Number of Samples taken.		Number of Vendors.		Samples not complying.					
					Number of Samples.		Number of Warnings issued.		Number of Prosecutions recommended.	
	Milk.	Other.	Milk.	Other.	Milk.	Other.	Milk.	Other.	Milk.	Other.
North Auckland	138	45	134	45	6	..	1	..	1	..
Central Auckland	945	180	940	174	89	29	77	17	12	10
South Auckland	193	34	193	33	6	2	4	2	2	..
Thames-Tauranga	51	15	51	15	2	2	1	..	..	2
Taranaki	54	52	43	43	1	2	..	..	1	2
East Cape	144	13	144	13	3	..	2	..	1	..
Wanganui-Horowhenua	198	53	197	47	6	9	4	3	2	2
Wairarapa - Hawke's Bay	217	43	210	42	6	4	2	2	4	1
Central Wellington	1,766	42	1,694	39	70	2	21	1	37	1
Nelson-Marlborough	188	40	174	40	4	2	1	1	3	1
Canterbury	1,672	107	1,605	92	113	26	91	19	6	7
West Coast	155	69	152	67	8	9	6	8	2	1
Otago	1,084	365	460	170	135	61	83	38	19	2
Southland	297	93	153	73	29	26	20	24	8	1
Totals	7,102	1,151	6,150	893	478	174	313	115	98	30

TABLE 2.—SHOWING INSPECTION OF PREMISES ENGAGED IN SELLING OR MANUFACTURING FOODSTUFFS DURING THE YEAR ENDED 31ST DECEMBER, 1931.

Health District.	Number of Premises inspected engaged in the Selling or Manufacture of Foodstuffs.	Number of Instances Articles were "seized" or "destroyed."	Number of such Food Premises requiring Sanitary Alteration.
North Auckland	1,804	5	314
Central Auckland	1,105	55	219
South Auckland	2,429	5	156
Thames-Tauranga	478	..	118
Taranaki	354	17	31
East Cape	737	9	214
Wanganui-Horowhenua	375	69	28
Wairarapa-Hawke's Bay	326	1	9
Central Wellington	379	52	9
Nelson-Marlborough	690	11	41
Canterbury	1,005	3	..
West Coast	662	10	39
Otago	1,649	7	182
Southland	826	3	26
Totals	12,819	247	1,386

TABLE 3.—LEGAL PROCEEDINGS FOR YEAR 1931.

	Number of Prosecutions.	Amount. £ s. d.
Milk below standard	29	104 4 7
Milk, added water	22	151 0 3
Ice-cream below standard	6	22 13 0
Butter below standard	3	9 11 8
Preservative in butter	1	7 2 6
Spirits not true to label	3	70 14 0
Cream below standard	1	4 5 6
Coffee and chickory essence below standard	1	9 3 6
Camphorated oil below standard	3	12 11 9
Beer below standard	6	44 16 0
Spirits below standard	1	9 13 6
Hospitals and Charitable Institutions Act	1	11 3 0
Recovery of St. Helens Hospitals fees	1	3 2 0
Illegal private hospital	1	6 5 0
Food premises (Regulation H. 125)	1	2 1 0
Infectious-disease regulations	1	2 11 0
Plumbers Registration Act	2	2 11 0
Totals	81	£452 19 3

SECTION 6.—ADMINISTRATION.

Economy Measures.—Reduction of Staff: A sad feature of this period of economic depression is the parting from highly valued colleagues. It became necessary pursuant to emergency legislation to consider the retirement of officers aged sixty or over, and I chronicle with regret the voluntary retirement of two Medical Officers of Health, Drs. H. Chesson and W. B. Mercer, and four inspectors—viz., Senior Inspectors Middleton, Cameron, and Kershaw, and Inspector York. These were well tried and trusted long-service officers, esteemed for their mature judgment and broad and friendly spirit. Their retirement at the age of sixty is premature in respect of their capacity for future work.

Since no new appointments are to be made to fill the vacancies thus created, it became necessary to effect some transfers in order to widen the boundaries of certain districts.

Travelling-expenses.—My thanks are again due to officers for a considerable reduction in travelling and other expenses. That the times we live in are such that these efforts must be maintained will be self-evident, and I am confident that every officer will continue to do his part.

New Health District.—Recently Dr. Cook assumed duty at Whangarei, combining there the duties of Medical Officer of Health and School Medical Officer.

Food and Drugs.—Sampling under the Sale of Food and Drugs Act has been well maintained. Several local authorities have sought to have their Inspectors appointed officers under the Act for the purpose of keeping a closer watch on the local milk-supply and generally observing the condition of fresh foodstuffs. It is encouraging to find local authorities taking this interest.

Several amendments to the regulations are being undertaken. It has been found necessary, owing to the free sale and persistent advertising of certain medicines containing thyroid extract, to require that the label shall bear a warning that the substance should not be used except under medical direction. This is to guard against the possibility of the user bringing about a dangerous condition in the attempt to remove what may be merely an uncomfortable one. Lysol is also being standardized in order to ensure a reasonable degree of efficiency, as there are now many manufacturers using this name for a disinfectant.

Other amendments of a minor nature have to do principally with details of administration.

Thanks are again due to the Comptroller of Customs and the Dominion Analyst and their officers for valuable assistance and advice.

Sanitary Administration.—Reports received from the various Medical Officers of Health appear to show steady improvement in the sanitary conditions generally throughout the Dominion. The year has been a light one in respect of infectious-disease outbreaks, sanitary installations, and the erection of public and private buildings.

I desire to again express my appreciation of the continued loyal and able co-operation of the Medical Officers of Health and their staffs.

T. McKibbin,
Director, Division of Public Hygiene.

PART III.—SCHOOL HYGIENE.

I have the honour to report on the work of the Division of School Hygiene for the year ended 31st March, 1932.

Staff.

The permanent staff consists of a Director, eleven School Medical Officers, and twenty-six school nurses. Owing to the necessity for economy, it was unfortunately not possible to replace during the year officers who retired. Drs. Wilkie and Collier have retired on superannuation during the year. A new Health unit has been created at Whangarei, where Dr. Duncan Cook acts as Medical Officer of Health and School Medical Officer. Dr. Emma Irwin was transferred to act as School Medical Officer, Nelson. Dr. Kathleen Abbott was appointed to the Southland District. Dr. Elizabeth Gunn was absent abroad on leave. There were several changes in the School Nursing Service: Miss Inglis, who held the combined post of Red Cross nurse and school nurse, Taranaki, was transferred to the position of Matron, Pukeora Sanatorium, Miss Small, school nurse, Nelson, taking her place; Misses Petersen and Mandeno were transferred to the District Nursing Service; Miss Willis, school nurse, retired on superannuation during the year.

There has been some alteration in the organization of the work of the School Nursing Service, more especially in rural areas, where arrangements have been made for the district Health nurse to act as school nurse for her district. As a result of the closer association of the district nurse with the people of her district it is hoped to secure better supervision and following-up. It is also anticipated that economy in travelling-expenses will be effected.

Figures relating to Work accomplished in 1931.

The following summary serves to indicate the extent of work accomplished during the school period, February to December, 1931:—

Schools inspected—		
Of roll under 100	998	
Of roll 100 to 500	382	
Of roll over 500	119	
		1,499
Children examined—		
Complete examinations	72,077	
Partial examinations	36,196	
		108,273
Number of notifications sent to parents		43,429
Number of addresses to school-children		584
Number of parents interviewed		13,883
Number of lectures or addresses to parents		22

The figures for the work of the school nurses are as follow:—

Number of days assisted Medical Officer in schools		1,735
Number of children examined for medical schedule (H. 529)		95,145
Number of children examined by special request		9,110
Number of children re-examined after Medical Officer's inspection		44,055
Number of visits paid to homes in—		
Large towns	10,362	
Small country towns	2,724	
Scattered districts	1,799	
		14,885
Number of children taken personally to hospital, &c.		1,076
Number of children taken personally to dental clinic		646
Number of Health talks given		476

ANALYSIS OF 69,173 COMPLETE EXAMINATIONS.

Total number of children examined	69,173
Percentage found to have defects	73·54
Percentage with defects other than dental	49·47
Percentage of children showing evidence of—	
Subnormal nutrition	6·68
Pediculosis	1·02
Uncleanliness	1·01
Skin—	
Impetigo	1·65
Scabies	1·98
Ringworm	0·15
Other skin-diseases	0·82
Non-vaccination	78·54
Heart—	
Organic disease	0·54
Functional disturbance	1·07
Respiratory disease	0·62
Total deformities of trunk and chest	11·77
Mouth—	
Deformity of jaw or palate, including irregularity	3·06
Dental caries	40·32
Extractions of permanent teeth	6·83
Fillings	36·70
Perfect sets of teeth	3·92
Percentage of children, &c.—*continued.*	
Nose and throat—	
Nasal obstruction	3·41
Enlarged tonsils	14·76
Enlarged glands	7·54
Goitre—	
All degrees	11·27
Incipient	9·01
Small	1·95
Medium	0·27
Large	0·04
Eye—	
External eye-disease	1·59
Defective vision (total)	3·83
Corrected	2·15
Uncorrected	1·68
Ear—	
Otorrhœa	0·28
Defective hearing	0·28
Defective speech	0·89
Mental—	
Feeble-mindedness	0·41
Epilepsy	0·05
Other nervous defects	0·47
Tuberculosis—	
Total	0·04
Pulmonary	0·01
Other tissues	0·03
Notifications to parents	37·83

These findings show no great variation from those of previous years. In spite of diminution of staff, the number of children examined has slightly increased, though the number of schools inspected is somewhat below that of the previous year.

Satisfactory features observed in the primary-school population of recent years are a decrease in verminous conditions and dirt diseases, and a decrease in remediable and neglected physical defect. Largely owing, no doubt, to better health supervision, school absenteeism has decreased 5 per cent. since 1920. (Average attendance, 1920, 87 per cent.; 1930, 92·2 per cent.) The mortality-rate of children of school age is declining (see "New Zealand Official Year-Book").

There is undoubtedly a widely increased public knowledge of the essentials for right living for which the health instruction and supervision provided in the schools during the last twenty years is to a great extent responsible. Evidence of wider interest is shown in the greatly increased number of parents who attend the medical examination of children (13,883 in 1931 as against 6,659 in 1923). The hygiene of the school itself has improved; credit for this must be shared with the Education Department.

NUTRITION.

The percentage of subnormal nutrition shows a slight rise from the previous year, 6·68 per cent. from 6·3 per cent. This increase would not in itself be noteworthy, but for the fact that School Medical Officers report, especially during the examination of city schools, increased evidence of the clinical signs of subnormal nutrition. In the poorer districts an increased number of children are too pale, lacking in muscular tone, and in general vitality. This is attributable to the widespread unemployment and the inability of the best-directed efforts of social organizations to deal adequately with the problem. Apart from the general economic question involving rate of wages, housing conditions, &c., the value of domestic management, including especially good cooking, becomes more than ever apparent. One woman feeds her children well, where another (possibly at greater cost) leaves hers undernourished. During the present crisis, though the general nutrition of the children is well maintained, it has been found necessary in certain city areas to make special arrangements for supplementary feeding. A simple and effective procedure has been the allowance of an extra pint of milk a day at school for necessitous children. The average daily consumption of milk per head of New Zealand population is calculated as being approximately three-eights of a pint, so that, allowing for its lesser use by adults, it appears that the use of milk in the dietary of children falls short of our recommendation—*i.e.*, from 1 pint to 1½ pints per day per child. In New Zealand, with its many sources of supply, milk, butter, fresh fruit, vegetables, &c., should be available at low-enough prices to meet the needs of the average household.

HEALTH CAMPS.

The health-camp movement in New Zealand shows steady progress. During the year the Auckland Community Sunshine Association (the well-known voluntary organization) held two camps—one at Motuihi Island in Auckland Harbour in the Quarantine Station lent by the Health Department, where approximately 100 children were in residence for six weeks. This association also held another camp at Waiheke Island for thirty delicate children belonging to the Sunshine School. Assistance was given in staffing these camps from the School Nursing Service. Following on these efforts, the

Community Sunshine Association held a camp for some ninety children in the Hawke's Bay area from families who suffered severely by the earthquake. Dr. Anderson, School Medical Officer at Napier, reported that on their return to Hawke's Bay these children showed immense improvement in physical and mental health. During this winter the community Sunshine Association in Auckland is carrying on a series of health camps for necessitous children.

The Waikato Health Camp Association held a camp for approximately two hundred children last Christmas holidays at their camp-site, Waikato Heads. The Hamilton Health Camp Association held camps at Okete for boys of the Young Men's Christian Association.

The Wellington Children's Health Camp Association, a voluntary organization, has entered upon its first year of activity, its aim being to provide for delicate and undernourished children, an environment where the healing-power of nature may have full scope. In its extreme youth the association received from Mr. Byron Brown a gift of 4½ acres of land in Otaki to be used as a site for a health camp. The association still owns this area. At a later period, however, Mr. Byron Brown handed over for philanthropic purposes to the Hon. the Minister of Health an area of land in Otaki comprising 60½ acres, on which it was decided to establish health-camp buildings. The Government purchased Native lands adjoining, so that the total extent now available is 107½ acres. By the transference of the open-air wards (Anzac and Suvla) from King George V Hospital, Rotorua, to Otaki there is now a building on the site well adapted for the purpose of holding health camps and capable of accommodating some one hundred children. The completed premises at Otaki were handed over for administration to the Wellington Children's Health Camp Association, which is responsible for general camp arrangements and maintenance. The Raukawa Health Camp, providing for children the opportunities and joys of a sunny sea-coast, was thus established. In the early part of the year a camp was held for some forty-five delicate children for a period of four and a half weeks, and subsequently fifty-five children belonging to the special classes in Wellington were in camp at Otaki for two weeks. Since the 6th June the camp has been occupied with groups of children for the most part suffering from malnutrition.

From the Dominion standpoint the value of such camps is undoubted. They attend to the stitch which taken in time saves nine. To give weakly children an opportunity to become strong is not only humane, it is in accordance with common-sense, and even from cold financial considerations is desirable.

Owing to the generous assistance of the Postal Department, substantial help in defraying the cost of health camps has been obtained from the sale of health stamps during the Christmas and holiday season. A 2d. health stamp provides 1d. postage and 1d. contribution to health. The health-stamp appeal in England, on the Continent, and in America annually brings in a large sum which is devoted to anti-tuberculosis efforts. It was the health-stamp campaign that made the Raukawa Health Camp possible, funds from this source defraying the greater part of the cost of transfer of the open-air building from Rotorua and its erection at Otaki.

Tuberculosis.

The percentage of children found suffering from tuberculosis on routine examination equals 0·04 per cent., which is a slight decrease on that noted for last year. The work of following up and the examination of children who are tuberculosis contacts is gradually extending. In making provision for this group, means for securing improved nutrition are essential. A considerable portion of the homes visited are those of relief workers or of ex-service men on small pensions who are handicapped by poverty. That the better supervision of children who are tuberculosis contacts is an essential and profitable undertaking is indicated by the results shown in School Medical Officers' reports. In the Wellington District, for instance, where the co-operation between the School Medical Officer (Dr. Bakewell) and the Tuberculosis Officer for the Hospital (Dr. Short) is excellent, the following return gives some indication of the work done:—

Tuberculosis Contacts, Wellington District.—Summary from 21st February, 1931, to 20th February, 1932.

Number of schools visited—	
3 monthly	77
12 monthly	10
Number of families on register	328
Number of children on register (but 44 have been lost sight of during the year)	700
Number of children examined by Dr. Short	356
(But number of examinations carried out by him)	376
Number of children—	
X-rayed	54
Receiving inunction	9
Receiving ultra-violet ray therapy	2
To Psychological Clinic (Dr. Russell)	3
To orthopædic specialist (Dr. Gillies)	4
To eye, ear, nose, and throat specialists (Drs. Simpson and Hope-Robertson)	34
To office for weighing or examination by School Medical Officer	90
To Macarthy Home, rest-home, or health camp	39
Treated at dental clinic or hospital dental department	182
Number of visits paid by school nurse to this group (approximately)	900

Of the 356 children examined by Dr. Short, 322 were negative and were dismissed for twelve months. Thirty showed signs of some tubercular infection—of these nineteen were treated by general preventive measures only (extra diet, milk, cod-liver oil, &c.). Nine, in addition, received tuberculin inunction—one as an inpatient, the others at home; two received ultra-violet ray therapy. All this group were re-examined at three or six monthly intervals by Dr. Short, with frequent visits made to the homes by the school nurse.

In 1930 twenty-one cases showed some positive signs; four were carried on in 1931 and are included in the thirty cases mentioned above. Seventeen improved to such a degree that the routine twelve-monthly review was considered sufficient.

Thirty-four children were examined by the ear, nose, and throat specialist. Some of these represent several weeks as inpatients, or repeated visits to the outpatient department at different times, and include mastoid and antrum exploration, removal of T.B. glands, &c.

With regard to the exposure to infection, the following figures may be of interest:—

(*a*) Number of children recently exposed to infection (*i.e.*, active case in the home or recently deceased) 291

(*b*) Number of children not recently exposed to infection (*i.e.*, latent case in the home or long deceased) 375

Of the thirty cases showing signs of infection, eighteen at least come from group (*a*); three of the others are Maoris.

For the child who is a tuberculosis contact, removal from his home environment to a health camp often offers the best hope, and justifies our efforts to establish some such means of care and supervision on a permanent basis.

Goitre.

The results of the routine examination by School Medical Officers indicate a decrease in the general incidence of goitre. Dr. Baker McLaglan, who has given special attention to the question, states, "Goitre is certainly not on the increase anywhere. It has markedly decreased in Canterbury, as shown by my statistics taken at the close of 1929. It is too soon to say, but I have the impression that it is beginning to decline on the West Coast, too. . . The use of iodized salt is now almost universal." On the other hand, Dr. Mecredy, Medical Officer of Health, Taranaki, a district hitherto credited with a low incidence of goitre and possessing a relatively high iodine content of soil, states, "As my reports for the last year indicate, I am now certain that there is a definite increase in the incidence of goitre throughout the Taranaki District as a whole. In some parts this is more marked than in others. From 1927 to 1929 I found that just over 10 per cent. of the children examined had goitre, and just over 2 per cent. a "visible" goitre. In 1930, however, the figures were 21 per cent. for total goitre and 8 per cent. for "visible" goitre, while in the year under review the figures were respectively 39·4 per cent. and 14·7 per cent. This indicates a rather startling increase, and does not seem to be in accord with the theory that iodine deficiency is responsible."

These findings give support to the view that low iodine content of soil is only one element in a complex situation, and that, when endeavouring to determine a cause for goitre, consideration must be given to the interaction of other influences as body hormones, toxic absorption from the bowels, &c. Further investigation into the question of goitre in Taranaki is now being undertaken. It is to be noted that the Dominion annual consumption of iodized salt shows a steady increase.

Physical Education.

In conjunction with the Physical Instructors of the Education Department corrective classes have been established where practicable. In Wellington Dr. Bakewell reports favourable results from three corrective classes established last year. The class at the Newtown School especially showed striking improvement, and demonstrated that the work is well worth doing provided a suitable teacher can be found. The difficulty is that Headmasters, though very sympathetic, are finding it impossible to release a teacher for the work of taking the remedial classes; this handicap, which has always existed, appears to increase rather than diminish as the years go by.

Dr. Stevenson, in Dunedin, reports favourably on the result of six remedial classes in town schools and the benefit derived by children referred to the Orthopædic Department at the Public Hospital for faulty posture, mouth-breathing, and flat foot. Dr. Mecredy comments favourably on the greater elasticity of the physical drill programme under the new system. He also points out a tendency in certain schools to lay too much stress on competitive games and athletics to the detriment at times of the welfare of the individual child.

Pediculosis and Skin-disease.

The return given for pediculosis and dirt diseases indicates on the whole a decrease in recent years. In view of the fact, however, that this year's return includes a group of 1,399 Native-school children in whom these conditions are much more frequent, there must be a more definite improvement in cleanliness and in freedom from skin-disease among the general school population than is apparent. The greater frequency of pediculosis and skin-disease among Maori school-children is a constant source of difficulty in mixed schools. When the Maori child attends a Native school he is as a rule better off, because the health education and practical supervision is more suited to his

needs. The district Health nurses, nurses to Natives, and school nurses do good work in raising the standard of personal cleanliness in Maori children. The following account of an investigation into the treatment of scabies, impetigo, and pediculosis forwarded by Dr. Turbott is of interest:—

Treatment of Scabies, Impetigo, and Pediculosis.—A District Nursing Study on Comparative Values.

During 1931 an effort was made in the East Cape Health District to determine the best home treatment for scabies, impetigo, and pediculosis. Miss North, Nurse Inspector; Miss Cox, school nurse; Miss Uniacke, district nurse, Tikitiki; and Miss Hill, district nurse, Whakatane, studied carefully between them 333 cases, and from their carefully recorded observations the following practical study is evolved. Each nurse applied the various treatments studied, the average result being therefore that from four observers working under ordinary district-nursing conditions.

Treatment of Scabies.—Routine departmental sulphur ointment (B.P.) treatment with its concomitant bathing and changes of clothes is compared with the Danish treatment of itch. This special ointment in contact with the skin produces hydrogen sulphide, "the high sulphide of potassium being the active principles upon which its activity depends." The procedure recommended is carried out as follows: "Take an ordinary cleansing hot bath. Dry thoroughly. Have the ointment applied to the whole body, and wait twenty minutes for soaking in. Then go to bed, or carry on ordinary duties. Twenty-four hours later have a second hot bath and put on fresh underclothing." Comparative results:—

Drug used.	Number of Cases and Severity noted.	Average Number of Treatments required.	Average Number of Days taken to Establish Cure.	Cost (in Pence, Indent Price) per Cure obtained.
	Per Cent.			
Departmental sulphur ointment ..	55 { Mild .. 14; Severe .. 42; Very severe .. 44 }	4·27	5·27	1·57
Hydrogen-sulphide ointment ..	50 { Mild .. 8; Severe .. 32; Very severe .. 60 }	1·60	2·74	1·90

The slightly dearer price of the hydrogen-sulphide ointment is offset by the great saving in the nurse's travelling and time as shown by the days taken until cure is established. The nurse has, of course, to make more visits than treatments given to establish the efficacy of same. All observers agree that the hydrogen sulphide is easier to apply, the suffering from itching ceases immediately after the slight initial smarting of the ointment subsides, the cure being miraculously quick and relapses absent. Twenty-two of the fifty cases obtained complete cure from one application. One nurse states, "They all had peace, and slept the first night after use."

Treatment of Impetigo.—Departmental unguentum hydrarg. ammon. (white precipitate ointment) is compared with a paint said to have been used in Egypt in wartime. One of the East Cape district nurses has used same extensively for years, and hence its efficacy was put to test. The paint consists of starch 1 part, glycerine 2 parts, boiled water 6 parts, to which when cold, iodine 1 part is added. It is easily made and very cheap. While taking more applications than dyhrarg. ammon., the cure is arrived at slightly sooner and at very much less cost. Both drugs are applied after hot disinfectant bathing of the sores.

Drugs used.	Number of Cases and Severity noted.	Average Number of Treatments required.	Average Number of Days taken to establish Cure.	Cost in Pence (indent Price) per Cure obtained.
	Per Cent.			
Unguentum hydrarg. ammon. ..	25 { Mild .. 44; Severe .. 32; Very severe .. 24 }	2·28	6·32	2·16
Starch-glycerine-iodine paint ..	29 { Mild .. 55; Severe .. 17; Very severe .. 28 }	3·96	5·93	0·95

Treatment of Pediculosis.—Four recognized treatments are pitted one against the other, as follows :—

Drug used.	Number of Cases (N: Nits only; LN: Lice and Nits; LLN: Very severe Infestation).	Per Cent.	Average Number of Treatments.	Average Number of Combings.	Average Number of Days taken to establish Cure.	Cost in Pence (indent Price) per Cure obtained.
Kerosene and vaseline ..	50	N .. 7 LN .. 58 LLN .. 35	2·45	3·75	3·75	0·43
Carbolic-oil (strength, 1/20) ..	43	N .. 14 LN .. 58 LLN .. 28	2·11	5·93	6·00	0·83
Quassia-chips..	50	N .. 2 LN .. 54 LLN .. 44	2·62	5·60	8·10	0·96
Sassafras-oil	41	N .. 12 LN .. 54 LLN .. 34	1·78	3·65	3·97	3·27

All treatments are equally efficacious in the long-run.

Sassafras is the easiest to work with, take least applications, but stings some scalps, and is dearest per cure obtained. Kerosene gives the quickest cure at the least cost, but is open to the objection of fire risk. This can be guarded against. Quassia-chips took most applications and longest treatment-time in days.

CONCLUSIONS.

1. The Danish treatment of itch is immeasurably superior to the routine sulphur-ointment treatment. The slightly higher initial cost of the former is proven to be offset by rapidity of cure and saving of the nurse's travelling-costs. To continue with the apparently cheaper drug is really false economy.

2. In treating impetigo, unguentum hydrarg. ammon. is very successful and easy to work with. A cheaper alternative is available, if required.

3. Pediculosis responds rapidly to sassafras treatment, but the comparative cost is prohibitive. Kerosene and vaseline method is cheapest and quickest. Carbolic 1/20 and quassia chips are dearer alternatives available, carbolic obtaining preference on results.

Examination of Native Schools.

The result of the medical examination of 1,399 Maori children is as follows : Number of children examined, 1,399. Percentage found to have defects, 81·92. Percentage with defects other than dental, 56·47. Percentage of children showing evidence of—Subnormal nutrition, 1·79 ; pediculosis, 6·58 ; uncleanliness, 0·50. Skin—Impetigo, 4·72 ; scabies, 15·15 ; ringworm, 0·36 ; other skin-diseases, 1·50. Non-vaccination, 94·64. Heart—Organic disease, 0·64 ; respiratory disease, 1·64. Total deformities of trunk and chest, 3·21. Mouth—Deformity of jaw or palate, including irregularity, 0·14 ; dental caries, 52·04 ; extractions of permanent teeth, 0·07 ; fillings, 1·79 ; perfect sets of teeth, 12·29. Nasal obstruction, 5·93. Enlarged tonsils, 19·66. Enlarged glands, 9·36. Goitre—All degrees, 7·50. Eye—Total defective vision, 2·14 ; corrected, 0·57 ; uncorrected, 1·57. Ear—Otorrhœa, 0·36 ; defective hearing, 0·14. Defective speech, 0·14. Tuberculosis—Total, 0·07.

Dr. Turbott continues his comparative study of Maori and pakeha. The comparative health of Maori and white children judged by routine school examination is shown in the following table, the figures quoted being percentages :—

	Maori.	White.
Heart—		
Organic disease	0·7	1·3
Functional	0·0	0·03
Respiratory disease : Unhealthy chests	1·8	0·4
Physique—		
(*a*) First-class nutrition	44·5	31·4
(*b*) Subnormal nutrition	1·09	0·9
(*c*) Total deformities, trunk and chest ..	2·3	4·7
(*d*) Club-feet	0·19	0·03
Cleanliness—		
Uncleanliness	0·05	0·5
Pediculosis	9·2	0·5
Skin conditions—		
(*a*) Scabies	15·1	0·2
(*b*) Impetigo ; septic sores	5·7	0·8
(*c*) Other skin diseases	1·4	3·7

	Maori.	White.
Vaccination performed	0·5	2·1
Dental hygiene—		
(*a*) Defects in jaw and palate	0·1	0·3
(*b*) Perfect sets of teeth—		
Primary	3·2	1·6
Secondary	8·7	0·6
(*c*) Dental caries—		
Primary	42·9	35·0
Secondary	11·6	17·2
(*d*) Pyorrhœa	1·3	0·3
Defects, nose and throat—		
(*a*) Nasal obstruction	5·7	8·1
(*b*) Enlarged tonsils	19·2	26·1
(*c*) Enlarged cervical glands	9·5	15·5
Goitre—		
Incipient	6·6	29·07
Small	0·4	0·8
Medium	0·0	0·1
Large	0·08	0·0
Total	7·08	30·05
Special senses—		
Ears—		
Deafness (figures incomplete).		
Otorrhœa	0·39	0·19
Eyes—		
Conjunctivitis	0·3	0·5
Squints, external and internal	0·2	0·4
Defective vision	7·2	9·2
Glasses worn	3·1	6·5
Hernia	0·3	0·1
Phimosis	0·0	0·1
Circumcision performed	0·0	2·2
Eneuresis	0·0	0·1
Worms	0·05	0·5

The Maori child shows superiority in absence of severe malnutrition, in incidence of perfect teeth, and in posture. The European child shows more evidence of personal care as in the lessened incidence of skin-disease and in greater evidence of conservative dentistry. The percentage of goitre (for the most part incipient) is much greater among white children (30 per cent.) than among Maori (7 per cent.).

Examination of Kindergarten Children.

The following return gives the percentage of defect noted in the medical examination of 785 children attending free kindergartens in Invercargill, Dunedin, Wellington, and Auckland: Number of children examined, 785. Percentage found to have defects, 73·12. Percentage with defects other than dental, 55·41. Percentage of children showing evidence of—Subnormal nutrition, 6·24; pediculosis, 0·76; uncleanliness, 1·27. Skin—Impetigo, 2·04; scabies, 0·51; ringworm, 0·51; other skin diseases, 1·27; non-vaccination, 69·17. Heart—Organic disease, 0·25. Respiratory disease, 1·78. Total deformities of trunk and chest, 5·87. Mouth—Deformity of jaw or palate, including irregularity, 0·76; dental caries, 43·57; fillings, 9·68; perfect sets of teeth, 18·98. Nasal obstruction, 7·01. Enlarged tonsils, 24·84. Enlarged glands, 15·54. Goitre—All degrees, 2·29. Eye—Total defective vision, 1·02; corrected, 0·64; uncorrected, 0·38. Ear—Otorrhœa, 0·38; defective hearing, 0·38. Defective speech, 2·55. Notification to parents, 28·41 per cent.

These percentages do not differ greatly from those relating to children entering the primary schools. Keen interest is indicated by the large percentage of mothers who attend at the medical examination. School Medical Officers speak appreciatively of the devotion of kindergarten teachers to the welfare of their pupils.

Medical Examination of Teachers.

There was no medical examination this year of applicants for entrance into the teaching profession owing to the decision of the Education Department to make no fresh appointments this year.

Special Classes.

Owing to the necessity for economy, institutional provision for mentally defective children was not extended this year. School Medical Officers continue to work in co-operation with officers of the Mental Hospitals and Education Departments in the examination of various groups of problem children and in determining the best available means for their welfare. Dr. Stevenson reports the setting-up of a voluntary committee in Dunedin for the after-care of children leaving the special classes, with the following objects: (1) To keep a helpful oversight on the children after leaving school; (2) to provide them with work as opportunity arises; (3) to form a recreational and work club, the club to meet once weekly with a session from 2 p.m. to 4 p.m. The After-care Association in Wellington continues to do good work on similar lines.

Dr. Phillipps, Christchurch, refers to the good work of a small group of teachers who voluntarily provide care and supervision for ex-pupils of special classes in that city.

Speech Defect.

School Medical Officers continue to exercise supervision of special classes for children who are hard of hearing or suffering from speech defect.

School Buildings and Sanitation.

An increasing number of new schoolrooms are of the open-air type. Observations are being carried out in Auckland to determine their influence on pupils as indicated by improved health, school attendance, &c. Dr. Stevenson reports good progress made by the pupils attending the open-air school at Kew, Dunedin. These are chosen because suffering from subnormal nutrition, rheumatism, latent tuberculosis, or other incapacitating condition, or are tuberculosis contacts. Dr. Henderson has forwarded comprehensive reports from Miss Milroy, nurse in charge of the Sunshine School, Auckland, which, under the auspices of the Auckland Community Sunshine Association, deals with a similar group of children to that at Kew. In both these schools careful daily supervision, including rest periods, supplementary feeding and open-air life (with, at the Sunshine School, sunbathing) has been justified by the benefit to the pupils.

School cleaning and sanitation improve steadily, if gradually, but two old enemies—dry sweeping and the common towel—still survive in places.

The circular H.Sch. 29, "Suggestions to School Committees and Teachers *re* the Cleaning and Sanitation of Schools," has been revised and redistributed.

Infectious Disease.

The following appeared in epidemic form during the year: Influenza, whooping-cough, chicken-pox, and diphtheria. Preventive treatment of diphtheria has been resumed in certain primary schools. At Otahuhu, Auckland, in response to a request from parents approximately seven hundred children were given by Drs. Wilson and Champtaloup protective inoculation, anatoxin being the chosen medium. In the schools of the East Cape district, under Dr. Turbott, preventive treatment is proceeding. Steadily about one thousand children recently immunized.

Special Investigation.

Dr. Mary Champtaloup, School Medical Officer, Auckland, conducted an inquiry into the incidence of cyclical vomiting. Dr. Champtaloup's conclusions are as follow:—

(1) 14·1 per cent. of children suffered from cyclical vomiting during some portion of childhood.
(2) 4·9 per cent. of children were marked or severe cases.
(3) 8·75 per cent. is estimated to be the actual incidence.
(4) Incidence among children with no sweets was double that among children with a regular supply of sweets.
(5) Incidence among children in small families, especially only children, was more than twice as great as in larger families.
(6) An adequate supply of green vegetables lessens the tendency to cyclical vomiting.
(7) A large amount of milk appears to encourage a predisposition to cyclical vomiting.

The Division of School Hygiene wishes to express its appreciation of the co-operation of the Mental Hospitals Department, Education Department, various Education Boards, School Committees, and others for valuable assistance.

A. G. Paterson.
Director, Division of School Hygiene.

PART IV.—HOSPITALS.

I have the honour to submit my annual report reviewing some of the activities of the Hospital Division for last year.

Building operations have been limited practically to completing works already commenced and new work to such as was absolutely necessary.

Important works completed during the year include the children's block at New Plymouth, the administration block at Timaru, the Nurses' Home at Riverton, additions to the Nurses' Home at Hamilton, new theatre block at Palmerston North. The new Nurses' Home at Christchurch is still in course of erection.

During the year special attention was paid to the restitution of hospital services at Napier. The hospital-site was levelled and special surveys were made to investigate the security of the whole site. The surveys proving favourable, it was decided to rebuild the hospital on the old site. A more minute survey of the Coleman and Midgely Wards was made, and it was considered that they could again be brought into use. Accordingly a contract was let for their strengthening and restoration, and these wards are now in use. The central administration block also suffered comparatively little damage, and this block is at present being repaired and made fit for use. The rest of the hospital buildings

have been demolished. A new Nurses' Home has been erected on the site of the old Jellicoe Ward. Plans are now in preparation for a single-story block of three wards, and this should be in use by the end of the present year. The Hospital will then have 130 beds plus twenty beds in the old shelters, and this should be sufficient to meet the needs of the district for some years. At present the Hospital has sixty beds in the restored wards, twenty in shelters, and twenty in two marquees, a total of one hundred. In addition, about twenty-five beds are in use at the Soldiers' Memorial Hospital at Hastings.

During last year considerable attention has been focussed on hospital activities in the Dominion, the contentions being mainly that there are (1) too many Hospital Boards, (2) too many hospitals, and (3) that the cost of the hospitals was too high. With regard to the first contention, it is now generally acknowledged that amalgamation of certain adjacent districts should take place, and the indications are that negotiations towards that end would now meet with some success. It is to be hoped that definite progress will be made in the direction of reducing the number of hospital districts. With regard to the second contention, undoubtedly there are in some districts too many subsidiary institutions, but no doubt transport facilities were not so efficient when these hospitals were built as they are now. In a few instances, however, it is difficult to see any valid reason for the establishment of a hospital.

The fact that transport facilities are much improved, is, however, only one reason why consideration should be given to closing or reducing the status of some of the subsidiary hospitals. The great and logical reason (apart from financial considerations) is the impossibility of obtaining modern facilities for diagnosis and treatment in these small institutions. This applies not only to subsidiary hospitals in a Board's own district, but also applies in some instances to the main hospital administered by these Boards, which have neither the population, finance, nor medical resources to justify the establishment of a fully equipped general hospital, and is in fact a strong argument in favour of, if not full amalgamation, then at least a close and full measure of co-operation between Boards. Efforts have been made by the Department to close or alter the status of some small hospitals, but the measure of success obtained is somewhat disappointing. Generally speaking, local influences have been too strong, and the Boards are unwilling to take any decisive action.

Much controversy has been waged around this subject of the cost of hospitals, and comparisons on as equitable a basis as possible have been made between the cost of hospitals in different districts and the cost of hospitals in different countries. The unit of comparison has been "the cost per occupied bed per annum"; this again being divided into several constituents, such as (1) provisions, (2) surgery and dispensary, (3) establishment, (4) salaries and wages, (5) domestic, (6) miscellaneous. On this basis it can be shown that New Zealand hospitals compare not unfavourably with hospitals elsewhere.

In comparing costs in this manner where hospitals are grouped quite fair conclusions may be drawn, as anomalies existing in one institution are smoothed out. In, however, comparing one hospital with another "the cost per occupied bed" as a basis is more open to criticism, owing *inter alia*, to variations in prices. For instance, take the item "coal." One hospital, such as Auckland, pays £1 0s. 3d. per ton, and another such as Wellington, pays £1 16s. 3d., the difference in price being almost entirely governed by transport from the mines and the quality of coal used. Another factor governing the total consumption of coal used is its calorific value, an item which has not always been given sufficient consideration. Similarly, with charges for electric current, for lighting the cost to our hospitals varies from slightly over 2d. to 7d. per unit.

These are only two instances where increase costs are due to factors partly beyond the control of the Board or its officers. Whilst this may be so in numerous instances there is undoubted need for greater attention to buying methods, and this was emphasized in a recent case where different prices had been paid for separate purchases of the same article (not subject to market fluctuations) in the same month by the same Hospital Board. A high cost per occupied bed should, it appears to me, be used only as an indication that further investigation is required.

A more informative and reliable basis of comparison can be used. If, instead, we compare hospitals not only on costs, but also on a quantity-consumption basis, better conclusions can be drawn. In this connection the late Sir Napier Burnett stated:—

> "Hitherto the question of cost has almost entirely monopolized the thoughts of the administrator, but I suggest that no one who wishes to administer a hospital efficiently can do so on a cost basis alone. There is a science that has been neglected in military and civil hospital administration—namely, *the science of measurement.* Apply this science of measurement to every department in a hospital, no matter what it is; measure your staff—so-many nurses, so-many doctors; measure your drugs and dressings—the quantity consumed per one hundred patients per month; measure the laundry; watch your meters; measure your coal-consumption; and if your measurements are right, obviously the cost will look after itself. I am not speaking now of the initial expenses of buying, but of the costs within the hospital. If your consumption-measurement is right, then my point is that your cost will come out all right also."

The above is a quotation from a departmental reprint of Imperial Army Form 24/6671 issued in 1920.

In making this quantity-consumption test the unit used is "quantity consumed per one hundred patient-staff days" or "quantity used per annum per occupied bed." As long as the same unit is used in comparing the consumption of the same article in different hospitals, then reasonable criticism can be made. Needless to say the question of price and quality must also be considered.

A reference to Table XV of the appendix to the annual report for the year ending the 31st March, 1931, will show that great variation occurs in the quantities of many items used. As a further example, during the inspection of two base hospitals this year the quantity of meat, fish, rabbits, and poultry

used per one hundred patient-staff days was in one case 69 lb. and in the other 94·9 lb. The hospital with the lower rate showed, however, an increase in the consumption of eggs 5·3 dozen against 3·5 dozen. Milk again was lower in the first case, the figures being 108·7 pints and 123·9 pints respectively.

In investigating the consumption of foodstuff quite erroneous conclusions may be drawn if comparisons are made on individual items. When, however, in making inspection, excessive quantity consumption is encountered, attention is drawn to the fact, and it is pleasing to note immediate steps are taken by the hospital authorities to investigate and apply a remedy.

A few examples taken from the heading "Surgery and Dispensary" issues will show a similar variation in quantity consumed.

NOTE.—The unit used here is "one hundred patient days" (the consumption of these articles not being affected by the number of staff).

Cotton wool varies from 0·85 lb. to 4·4 lb.
Gauze varies from 8·6 yd. to 72·3 yd.
Spirits—Vini, methylated varies from 2·3 lb. to 11·6 lb.
Hydrogen peroxide varies from 0·1 lb. to 1·7 lb.

In these instances due weight must be given to the proportion of surgical work done. It is evident, therefore, that in order to secure economy, consumption within the hospital is just as important as the price paid by the hospital.

As variations also occur in the prices paid for the same articles, it may be said that this constitutes a strong argument in favour of a combined buying scheme or schemes for our hospitals; but before such an object could be secured a system of standardization would have to be evolved. This presents considerable difficulties not so much in food lines as in surgery and dispensary supplies. It appears to me that group buying—that is, the grouping of hospitals geographically in touch—would result in savings just as great as the setting-up of one central buying authority.

The sum of my remarks is that for efficient and economical administration not only must every effort be made to secure that the best prices are obtained, but equal efforts must be devoted to ensuring that the quantity consumed is also within reason. If these two factors are always kept well in the forefront, then an administrator will find that the problem of "waste" is largely solved.

It will be obvious that to secure this desirable result the whole hospital staff must be working as a co-ordinated team and that each group or in some instances each individual should be kept in touch with the activities of all other groups or individuals by the issue of frequent comparative returns, augmented by free discussions by administrative heads at regular conferences.

In addition to the investigation of actual costs of maintenance and treatment in the various institutions, the need arises from time to time for investigating the volume of clinical work done. The direction in which such investigation should be pursued is often indicated by comparing the proportion of population in each district given inpatient treatment.

Here again due weight must be given to various factors such as (1) the number of patients from outside districts seeking treatment, and (2) the facilities available for private treatment in the areas concerned. The figures given below take no account of these factors. It can be taken for granted, however, that comparable private facilities are available in most of the larger centres.

The figures quoted refer only to "general beds" and as far as possible exclude admissions to tuberculosis wards, chronic wards, and infectious disease and maternity wards, but include general beds in subsidiary hospitals.

Hospital District.	Proportion of each 1,000 of Population treated as Inpatients, 1930-31.
Auckland	36·45
Wellington	46·47
North Canterbury	42·07
Otago	41·04
Waikato	42·14
Taranaki	50·44
Wanganui	48·02
Palmerston North	46·91
South Canterbury	47·17
Southland	36·21
Nelson	38·90
Buller	66·86
Grey	87·70
Ashburton	52·46
Dannevirke	46·97
Waipawa	81·75
Waihi	129·87

It will be noticed that the proportion varies from 36·21 per 1,000 in Southland to 129·87 in Waihi.

The proportions for North Canterbury, Waikato, and Otago are possibly raised by the presence of subsidiary hospitals in the area. For example, if the returns from the subsidiary hospitals in North Canterbury are deleted, the admissions into Christchurch Hospital would represent about 38 per 1,000; a return not very much different from Auckland. I offer no criticism of these figures, as a much more minute examination would have to be made before reasonable conclusions could be drawn. However, even in their present form they offer a field for investigation.

Inspection of Hospitals.

During the past year inspection of hospitals has been continued. Both on the technical side and the house-management side detailed investigations into several institutions have been carried out, but owing to the smallness of the staff available and the amount of time taken up by routine work and our own institutions, this work is not so continuous or extensive as is desirable. With the valuable co-operation of the Nursing Division our inspections are now more thorough and comprehensive.

There remains, nevertheless, a big hiatus—namely, the inspection and valuation of the clinical work done. It is quite impossible for one medical man to cope with this aspect of hospital activities. All that can be done in the meantime is to look into such questions as methods of admissions, case records, number of days' stay, &c. It appears to me that a plan of clinical inspection should be evolved by the honorary staff of the hospital, and where no honorary staff is available by the appointment of an outside clinician of undoubted merit, to periodically inspect the clinical records and methods.

Departmental Institutions.

Below are extracts from the annual reports of the Medical Superintendents of our various institutions:—

Queen Mary Hospital, Hanmer. (Medical Superintendent, Dr. C. Chisholm.)

"The chief characteristic of the work of the year has been an endeavour to carry out economies in every section of the institution. In the year 1930–31 considerable reduction of staff was carried out, and further reduction has been carried out during the present year, resulting in a reduction of fifteen during the past twelve months, and still further effort is being made to reduce staff. Owing to the outside activities, such as electric-light, water-supply, grounds, tea-kiosk, and bath-houses, the total number of staff employed would appear to be greater than would possibly be required for the hospital if these activities were not attached to it.

"Women's Hospital: This section of the hospital has remained full during the year, and has, at times, been overcrowded.

"Male Hospital: There has been a considerable lessening in the number of patients presenting for admission, this being partly due to the decrease in the number of 'service' patients, and probably due to the economic state of the country, as far as the civilian patients are concerned. We have closed down part of the hospital in an endeavour to economize in this direction.

"Nursing Staff: There has been very little change in the nursing staff during the year, excepting that there has been a general reduction in both the trained staff and the hospital aids.

"Massage Department: The work in this Department has been carried out satisfactorily, and the massage department has been kept comparatively well. There has also been a reduction in the staff of this department.

"Electric Light: There has been considerable extension of power in the village, and the water-driven machines are now loaded to capacity. Any further extension will entail the use of the stand-by plant.

"Farm: The farm appears to be well managed, and the supply of milk is satisfactory; the general produce of the farm is profitable to the institution. A fair amount of work is done by the patients. The staff is being kept at a minimum.

"Dental Service: Mr. Arthur Suckling, honorary dental surgeon to the hospital, has continued to pay frequent visits to the institution, and his service to the patients has been most valuable and appreciated by the medical staff.

"Red Cross: The Red Cross continues to maintain the recreation-rooms. The service of the Red Cross is appreciated by the patients, and is a great help to the institution.

"During the year I have received every help from the senior members of the staff, and they have cheerfully faced the difficulties which the state of the country has demanded. They have endeavoured to assist in every way to reduce the cost of running the institution, and in many cases have cheerfully undertaken the extra work, which of necessity has been involved."

King George V Hospital, Rotorua. (Medical Superintendent, Dr. Lewis.)

"I have the honour to present the report on this institution for the past year. It will be noted from the statistical information appended that the numbers of general in-patients and out-patients treated during the year under review approximate very closely to those treated in the several preceding years. This work has been carried out with a greatly reduced staff and has therefore involved additional duties and increased responsibilities on every member, who have in all cases loyally responded to these increased demands.

"The numbers of Maoris admitted to Hospital comprise approximately 30 per cent. of the total admissions. Members of the Maori race are showing every year a greater confidence in the methods of western medicine, and place less reliance on their own tohungas than has been their practice in the past. This has been shown by the large numbers of these patients who come from the Urewera Country, from which part previously very few could be induced to come to hospital for treatment.

"The incidence of infectious disease remains very low, no epidemics having occurred, and the only admissions being occasional sporadic cases. The restricted accommodation available, however, barely suffices for our present needs and would be entirely inadequate in case of an epidemic.

"A considerably increased use has been made of the accommodation available for maternity cases. The provision of the new labour ward has facilitated the work in this section."

Otaki Sanatorium, Otaki. (Medical Superintendent, Dr. R. S. R. Francis.)

"Statistics: The number of patients in the Sanatorium at the beginning of the year was fifty-one. At the end of the year it was also fifty-one. During the year there were eighty-seven admissions. Eighty-one patients were discharged and there were two deaths. One death occurred in a patient who unfortunately developed an acute broncho pneumonia whilst arrangements were being made for her transfer back to her hospital, as her case was too advanced for further treatment. The other death occurred in a case who was really not fit for sanatorium treatment—too ill in fact to have attempted the journey here—and who could not possibly be returned.

"Of the eighty-one patients discharged, forty were discharged as recovered, thirty-four as relieved, and seven as unrelieved.

"Treatment: This is carried out on the usual lines. Solganol B is being used somewhat more freely. The doses of this drug are being much reduced, as small a dose as 0·0001 gram being given. There is no doubt that we have tended to give too large doses in the past. The smaller doses seem to me to be really more beneficial in the long-run, especially when there is any degree of activity present. Acriflavine has been used as an injection where secondary infection is present and also as an adjunct to the Solganol B injections. In this connection I may mention that I have written to Messrs. Schering suggesting the manufacture of a compound of Solganol with an acridine radicle, but it is too early for a reply as to its feasibility or possible utility.

"Weekly lectures are given the patients on how to look after themselves, both in and out of the Sanatorium, so that they will benefit to the fullest from the treatment they have received.

"Recreation: Pictures are shown once weekly, furnishing a pleasant break for the patients. Our thanks are due to Mr. Richards and his assistant, of the local picture-theatre, for their kind services in this direction. It is hoped in time to have a small "talkie" installed when the necessary funds are available from the Brown McWilliam Recreation Fund.

"Concerts have been given by various concert parties from Wellington, &c., to all of whom we are grateful.

"A putting-course has been set out on the lawn and this affords patients a pleasant but not too strenuous pastime. Croquet was commenced during the late summer, but has now been stopped pending attention to the lawn.

"Staff: There were considerable alterations in the staff during the year. Dr. Irwin returned to the School Medical Service in December when I took over the Sanatorium. She did excellent work whilst here and was much liked by the patients and staff. We wish her all success in her new position. Miss Pownall retired from the matronship, a position she had held for seven years. She was replaced by Miss Aiken of Pukeora.

"Farm and Kitchen-garden: The dairy herd has furnished a more than ample supply of milk and cream for the institution. In addition, we have kept the Otaki Hospital supplied, and have been able to dispose of cream to the factory in sufficient quantities to bring in a good return.

"The kitchen-garden has supplied not only this Sanatorium with a plentiful and varied supply of excellent vegetables, but also the sister institution at Pukeora, St. Helens Hospital at Wellington, and the Otaki Hospital.

"Ornamental Grounds: The ornamental grounds at the Sanatorium itself are now in quite good order. I have tried to get patients interested in gardening and have given them a little light gardening, such as planting out seedlings. As time goes on I hope to get them more interested in what is a pleasant home hobby suitable for tuberculosis patients."

Pukeora Sanatorium, Waipukurau. (Medical Superintendent, Dr. G. Maclean.)

"The total number of patients treated during the period of this report (212) is the lowest on record for this institution. The number has steadily diminished during the last two years, and last year's total of 264 would have been much lower had it not been necessary to find accommodation here for "advanced" cases from Napier and Waipawa Hospitals, consequent upon the earthquake and the destruction of the former hospital. The decline goes on steadily, as indicated by the daily return of occupied beds, shown, for instance, six months ago at ninety-two, and ending in March at seventy-six. By the return of many chronic advanced cases to hospital annexes the cot-case percentage has been reduced by half during the last six months. To keep these hopeless cases sent to us by the Boards makes the Sanatorium too much like an infirmary. It is, of course, reasonable use of a Sanatorium to send advanced cases for a short period of educative treatment; but in none of these cases do we find, on inquiry in history-taking, that this aspect of the case has ever been put to the patient. I can remember only one doctor sending a case with such an understanding during eight years.

"Results of Treatment: A total of 212 patients have been treated during the year, 159 male civilians, 33 ex-service, and 10 women. Patients discharged numbered 126 as follows: Disease arrested, 52; much improved, 24; improved, 36; unimproved, 14.

There were eight deaths—five male civilian, two ex-service, and one woman patient. All excepting the two ex-service patients were advanced cases from the Napier Hospital transferred after the earthquake.

"Ornamental Grounds: The best that can be done with reduced staff is being done at present. Dangerous footways have been replaced by solid concrete paths and useless paths eliminated. There have been fewer patients than ever able to assist in gardening-work. The "work" cure as such does not now exist.

"Farm: The farm is doing well. All our supplies come to hand with complete satisfaction. The milk test averages about 3·8 and the cream test 30–35. The latter test, I think, could be better. Arrangements have been made with the Department of Agriculture for more regular visits from the agricultural adviser in this district.

"Canteen: The sale of the few requisites for the patients and staff still continues, but the returns are very much lower than in former times. The Department has been saved a great deal of expense by the use of the Canteen Fund for the provision of comforts for the patients. One of the biggest items of expense has been the provision during the last few years of complete wireless installation. The gift by the Red Cross Society in 1926 of the "Elstree" receiving-set, &c., provided wireless for the patients who were up and about, but the total provision for bed patients involved the expenditure of some £40. This is only one of the items in connection with the wireless service that the small Canteen Fund has provided. The cost of frequent expensive repairs is also borne by this fund.

"Red Cross Society: As in former years, I desire to express my appreciation of the services rendered by the various visiting committees of the Red Cross Society. Despite the hard times, there has been no decrease in the gifts of the local branch on behalf of the patients, both service and civilian, at this institution. The executive of the Red Cross Society found it necessary from lack of funds to dispense with the services of Miss Shaw as Vocational Instructress. Miss Shaw ceased duty on the 31st March, 1932, and instructional work is being carried on by one or two of the older patients."

The Medical Superintendents of both Otaki and Pukeora Sanatoria again draw attention to the large number of patients sent forward who are quite unsuitable for sanatorium treatment. The results achieved in these cases are naturally disappointing both to patients themselves and the staff of the institution.

In conclusion, I can only express appreciation of the efforts of every member of the staff of the Hospitals Division in their endeavour to secure economy and efficiency.

R. A. Shore,
Director, Division of Hospitals.

PART V.—DENTAL HYGIENE.

I have the honour to submit the following report on the work of my Division for the year ending the 31st March, 1932:—

SECTION 1.—TREATMENT CENTRES, STAFF, ETC.

Treatment Centres.—At the end of the period under review (31st March, 1932) the School Dental Service was in operation at 203 centres. Of these, 130 were main treatment centres and 73 were sub-bases. New clinics were established during the year at Fairlie, Gladstone Road (Auckland), Kaiapoi, Leeston, Methven, Naseby, New Lynn, Otorohanga, Picton, Port Chalmers, Queenstown, Runanga, Stewart Island, South Westland, Waimairi, Warkworth, Woodlands, and Woodville. The following subcentres have been made main treatment centres: Ashburton Borough, Carterton, Featherston, Inglewood, Sumner, and Waitara. One clinic has been closed owing to the refusal of the local Committee to undertake the necessary financial responsibility (*vide infra*). A few were without officers for varying periods owing to temporary shortage of staff, but additional dental nurses are now available, and work at these centres will shortly be in full swing again.

Staff.—On the 31st March, 1932, the staff numbered twelve dental officers and 202 dental nurses, disposed as under:—

	Dental Officers.	Dental Nurses.
Administrative and training staff	9 (1 temporary)	2
In school dental clinics	3	148
Reserve group (Wellington)*	..	22
In training	..	30
Total	12	202

I regret to say that the drastic curtailment of expenditure that was imposed on the Department during the year necessitated a reduction of staff, and, including certain officers who retired voluntarily, the services of thirteen officers were lost to the Dental Division.

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*Consequent on the decision to appoint no probationer dental nurses in 1932, it has been necessary to arrange for a reserve of trained dental nurses to be retained in Wellington to assist in carrying on the work of the clinic there during 1932, and to be available to fill vacancies in the field in 1933. The number shown above (22) will be reduced by approximately two-thirds during the next few weeks in order to fill existing vacancies in the field.

Training of Dental Nurses.—This has been ably carried out by Mr. J. B. Bibby, Superintendent of the Wellington Clinic and Training School, assisted by the instructional staff. During the year there have been fifty-six probationer dental nurses in training, thirty-five in their second year, and twenty-one in the first year. Of the former, twenty-six have now completed their training, of whom three have already been transferred to school dental clinics in the field.

The Primary Examination (Anatomy and Physiology) was held in September, 1931, the Examiners being Dr. Ada Paterson and Dr. F. S. Maclean. Of the twenty-one candidates, six failed to pass in one of the two papers; these candidates, however, were successful in gaining a pass in a special examination held in February, 1932.

The Final Examination was held on the 7th, 9th, and 10th March, 1932. The examination was conducted by Mr. Millen Paulin, B.D.S., and associated with him was the Superintendent of the Training School. Of the twenty-nine candidates eligible to sit, twenty-six passed. Nine will sit for a special examination to be held in a few months time.

No additional probationer dental nurses have been appointed for this coming year. Thus there will be a further reduction in the number of dental nurses in training, allowing the release of one of the instructional staff.

Inspection and Supervision.—As from the 1st January, 1932, a change was made in the system of supervising the work of the school dental clinics. The new system, that of decentralized control through district officers, has already fully justified its introduction. Instead of the whole Service being controlled in detail from Wellington on the reports of Inspecting Dental Officers, there are now District Dental Superintendents with headquarters at the district health offices at the four main centres. These officers control the school dental clinics in their own districts, the work being co-ordinated from this office. The District Dental Superintendents are: Wellington, Mr. R. D. Elliott; Auckland, Mr. F. B. Rice, B.D.S.; Christchurch, Mr. A. D. Brice, B.D.S.; Dunedin, Mr. J. S. Nicolson. This system enables a much closer personal touch to be maintained not only with the officers in charge of clinics, but also with the local dental clinic committees. These committees fulfil a very important function in connection with the operation of school dental clinics, particularly in regard to finance, and it is very desirable that there should be the closest co-operation between the Committees and the officers of the Department. The system of administration that is now in operation provides for this, and there is every indication that it will secure not only increased efficiency, but also economy.

SECTION 2.—STATISTICS.

(*a*) Operations performed in the field and in the training school from the 1st January to the 31st December, 1931:—

Fillings—		
In permanent teeth	110,132	
In "first" teeth	224,695	
Total fillings		334,827
Extractions		80,389
Other operations		147,543
Total operations		562,759

(*b*) Number of schools under systematic treatment, 1,118.
(*c*) Number of children receiving systematic treatment, 68,995.

The following figures illustrate the progress of the Service during the last three years:—

Year.	Number of Schools under Systematic Treatment.	Number of Children receiving Systematic Treatment.	Total Number of Operations.
1929	775	62,100	370,074
1930	930	67,652	463,204
1931	1,118	68,995	562,759

The total number of operations performed since the inception of the Service (1921), 2,689,259.

SECTION 3.—POLICY.

The past year has been marked by an important change in policy. Dental Clinic Committees have been called on to increase their contribution towards the maintenance of the school dental clinics to the extent of paying to the Department the sum of £30 per annum to cover the cost of materials used by each Dental Officer or dental nurse employed. This payment is in addition to certain maintenance expenses, amounting to at least an equal sum, which have always been borne by the local Committees. In order to assist them in raising the increased sum, Committees were empowered to levy a charge not exceeding 5s. per year for each child treated. As was anticipated, many difficulties had to be

overcome in putting this important innovation into effect. However, with only one exception (Beresford Street School Dental Clinic, Auckland), the Committees accepted the increased responsibility, and immediately took steps to set up the organization necessary to meet the situation. The prevailing financial depression has made their task no easy one, but, nevertheless, good progress has been made at most centres. It is pleasing to note the ready manner in which teachers, School Committees, and Dental Clinic Committees are co-operating with one another to secure the funds necessary to retain the service for the children under their care. Unfortunately, their efforts are not always supported as they might be by those who should be most keenly interested—namely, the parents themselves. The apathy on the part of certain parents has resulted in a number of children becoming ineligible for further treatment at school dental clinics. At a few places the drop in the number of children under treatment was such as to actually necessitate a reduction in the clinic staff. Even so, however, the total number of children receiving regular and systematic treatment at the end of 1931 shows a net increase of 1,343 over the number under treatment at the end of the previous year. Taking into consideration the far-reaching nature of this variation of policy, and the fact that in most cases a considerable portion of the financial year had elapsed before the local Committees were in a position to put their plans into operation, the result must be regarded as satisfactory.

SECTION 4.—WELLINGTON DENTAL CLINIC.

The Superintendent of the Wellington Dental Clinic, Mr. J. B. Bibby, reports as follows:—

Operations performed in the Dental Clinic, Wellington, for the year ending 31st March, 1932, are as follow, the 1930–31 figures being shown in parentheses:—

Attendances.	Fillings.	Extractions.	Other Operations.
46,488	30,551	2,881	24,497
(47,486)	(38,185)	(3,708)	(28,787)

The figures for 1931–32 show a decrease; this is chiefly due to a reduction in the number of dental nurses in training during this period.

It is pleasing to note that the relative number of extractions to fillings still continues to fall. The 1931–32 figures for extractions are lower than those of the previous year: 1930–31, 1 extraction per 10·3 fillings; 1931–32, 1 extraction per 10·6 fillings. This is partly accounted for by the fact that an increasing number of children come under the care of the clinic at a very early age. More home care has also contributed to this result.

The number of new patients who have been admitted to the clinic for the first time during the twelve months 1st April, 1931, to 31st March, 1932, is 1,626.

The following table, giving the percentage of new patients of various ages who were admitted for initial treatment, is of particular interest, as showing the increasingly early age at which children are being placed under the care of the clinic for regular and systematic attention:—

Age.	1921–22.	1926–27.	1931–32.*
Under 2 years	..	0·1	1·8
2 years and under 3 years	0·7	1·4	13·7
3 years and under 4 years	1·5	6·2	20·4
4 years and under 5 years	2·8	11·8	18·5
5 years and under 6 years	6·5	11·4	15·8
6 years and under 7 years	8·7	12·6	13·6
7 years and under 8 years	15·8	10·4	10·3
Over 8 years	63·9	46·1	5·9

* Age of 1931–32 patients was six to nine months greater at date of admission than when actual application for treatment was made.

It will be seen from the above that in 1931–32, more than half (54·4 per cent.) of the children admitted were under five years of age. Ten years ago, 1921–22, only 5 per cent. of the admissions were under five years of age, while 63·9 per cent. were over the age of eight. These figures demonstrate in a striking manner how parents have learned to appreciate the value of early dental care.

On the 1st September, 1931, an annual charge of 2s. 6d. for each patient treated was instituted at this clinic. Although exemption for those unable to pay this small fee is provided, there has been a considerable decrease in the number of applications for treatment.

During the year an endeavour has been made to keep in touch with the work of the Division of School Hygiene, and the Child Welfare Branch of the Education Department. Ninety-five tuberculosis contacts, referred to the clinic by officers of the School Medical Service, are now receiving regular treatment, and as large a number of State wards who are under the care of the last-named Department. Treatment has also been extended to the children of the Presbyterian Boys' Orphanage, Presbyterian Girls' Orphanage, the Levin Memorial Home, and the St. Mary's Anglican Orphanges (three). Over 130 children from these institutions are now under treatment.

SECTION 5.—GENERAL.

Dental Health Education.—Officers of the School Dental Service have, as in previous years, given their attention to this important subject. During the year addresses have been given to various women's organizations and also over the air. By means of talks to classes, chair-side instruction, distribution of literature, and the use of coloured posters in clinics and schools, the attention of the children has been directed to the possibilities of preserving the teeth and reducing dental disease. They are taught that the dental salvation of the Dominion is not in the hands of the dental profession or of the school dental nurses. These can help by enabling individuals to experience for themselves the benefits of sound and healthy teeth, and they can point the way towards the goal of improved dental health, but this desirable goal can be reached only by personal effort on the part of individual parents and children in accordance with the principles that are taught them.

Operative Work.—The officers responsible for supervising the work carried out in the clinics throughout the Dominion report very favourably on the high standard that is maintained. The dental nurses' operative work has also been favourably commented on from time to time by various disinterested members of the dental profession. This is satisfactory from the point of view of the public, and at the same time reflects credit on the quality of the teaching given to the dental nurses at the Department's training school.

Resumption of Work in Hawke's Bay.—As noted in my last annual report, the work at Napier and Hastings had to be discontinued for the time being as a result of the earthquake. I am pleased to be able to report that the work has now been resumed at both centres. At Hastings a new and up-to-date clinic was erected by means of local subscription with the assistance of a Government subsidy, while at Napier the original accommodation has been reconditioned and is once more in commission.

Stores and Equipment.—The standardizing of instruments, equipment, &c., that was carried out some years ago has proved eminently satisfactory, and moreover has resulted in a great saving of cost to the Department. It is pleasing to be able to report that instruments and equipment are very well kept. Replacements due to carelessness are remarkably few.

Inspection of Dental Hospitals.—I recently commenced the inspection, on behalf of and by direction of the Department, of the dental departments of the various public hospitals.

Observations in regard to this will be reserved until a later date when the inspection has been completed.

Acknowledgment.—The voluntary assistance given during the year—a year of unusual difficulties and unexpected problems—by Dental Clinic Committees, School Committees, teachers, and by Education Boards and their staffs calls for the warmest acknowledgment from this Department, as does also that carried out by all other persons who in private, official, and semi-official capacities have, in the interests of the children, helped forward the activities of the School Dental Service.

I cannot speak too highly of the splendid service rendered by all officers of the Division during the past year. Apart from the unsettling effect of the economic depression, a measure of disorganization occurred in practically all the clinics consequent on the change in the policy in regard to finance, and Dental Officers and dental nurses have shown commendable resource and initiative in adjusting the organization of their areas to meet the changed conditions. The officers of the administrative, instructional, and clerical staffs have carried out their duties with their usual zeal and ability, and I am grateful for their loyal support and assistance during a very difficult year.

J. Ll. Saunders,
Director, Division of Dental Hygiene.

PART VI.—NURSING.

I have the honour to submit my annual report for the year ended 31st March, 1932.

The past year, owing to the period of financial difficulty through which the Dominion is passing, has been one of considerable retrenchment. Several senior officers have been retired whose positions have not been replaced, and to enable the same service to be given to the public a great deal of internal reorganization of staff has taken place. This every one has entered into whole-heartedly, making every endeavour to overcome the difficulties presented.

Nurses and Midwives Registration Board.

There have been four Board meetings during the year.

Personnel.—The year opened with the personnel of the Board as follows: Dr. M. H. Watt (Chairman), Dr. W. Young, Miss E. P. Tennent, Miss H. Newman, Miss R. Muir, Mr. W. Wallace, Miss M. Lambie (Registrar), Mr. J. W. Buchanan (Secretary).

The term of office of Dr. Young, Miss Tennent, and Miss Newman was completed in October, 1931. The Government reappointed Dr. Young and, on the recommendation of the New Zealand Trained Nurses' Association, Miss Tennent for a second term and Miss Morgan, Matron of the Alexandra Home, Wellington. At the December meeting Dr. Watt (the Chairman) in welcoming Miss Morgan to the Board, also expressed the Board's very great appreciation of Miss Newman's work during the past three years.

Training of Nurses.

Various measures were adopted by the Board which it is considered will improve the standard of training; among these were included the following:—

(*a*) A strong recommendation was made to the Hospital Boards, which nearly all have agreed to, that in future probationers should not be "signed on" until they have completed a year's service so as to extend the probationary period.

(*b*) The section of the Nurses and Midwives Registration Act is now enforced which states that all pupil nurses must have completed three years and three months training before they can sit for the State Examination, except when specially recommended, the Registrar can grant an exemption of two months.

(*c*) The revision of the Nurses' Practical Work-sheet bringing the subject-matter more up to date. This is presented when making application to sit for the State Examination.

(*d*) The decision that a third of the questions set for the State Examination should be set and examined by a nurse examiner.

(*e*) The general standard of the State Examination has also been considerably raised.

There were 412 candidates for the two examinations held, one in June, and the other in December, and as a result 328 qualified for State registration, while 84 failed to come up to the required standard.

The Examiners in their comments all state that the papers as a whole are of a much better educational standard, weaknesses were apparent in the giving of general nursing principles, and omitting the detailed care for the particular case asked for, and the teaching of dietetics still needs to be improved. Gynæcology, infant-welfare, and infectious diseases, in the opinion of the majority of the oral Examiners, are subjects which are not as well answered as should be.

All the training-schools were reported upon during the year either by Miss Moore, Nurse Instructor, or myself, with the result that, after careful consideration by the Board, Mangonui, Tauranga, Whakatane, Taihape, Opotiki, Wairoa, Reefton, Waihi, and King George V Hospital, Rotorua, were cancelled as training-schools; Riverton and Patea were regraded as B grade training-schools, and the pupil nurses of Balclutha are to be required to do a period of three years and six months training in conformity with other B grade training-schools.

To assist in the overcoming of unemployment among nurses, the hospitals so regraded have been advised to staff with junior staff nurses who have just completed their training at base hospitals and aids from the waiting-lists of applicants from the same hospitals. In many instances this scheme is being carried out successfully.

Following on the alteration of the Nurses and Midwives Registration Act of last year, the Home of Compassion, Island Bay, Wellington, undertook extensive alterations to qualify as a training-school, and was approved as from the 1st January, 1932. It is the intention to confine training to members of their own order.

Training of Midwives and Maternity Nurses.

Following on the alteration in the scheme of training for midwives and maternity nurses enforced by the new regulations of 1930, it became apparent that it was necessary to draw up a new syllabus carefully outlining the difference between the two courses. This was done early in the year. The new syllabus for maternity nurses who are untrained women provides for instruction in elementary nursing, anatomy, physiology, and elementary cooking; and the new syllabus for midwives, a more advanced course. The use of the case-book was simplified at the same time. During the year St. Helens Hospitals at Gisborne, Wanganui, and Dunedin were cancelled as training-schools, as well as Picton Maternity Annexe.

Examiners.—The previous list of Examiners for the Board has been cancelled. The new approved list contains practically all the original Examiners, and many new names of doctors and nurses who have consented to act.

Post-graduate Course for Nurses.

Owing to the economic conditions, no course was held in 1931. However, the New Zealand Trained Nurses' Association, who have always shown a most active interest in the establishment of this course, have offered to assist by granting a number of bursaries large enough to cover the cost of board and lodging for students for 1932, with the possibility that some further help may be given in 1933. The result of this assistance has been that a small class is being held which commenced on the 22nd February of this year, under Miss Moore, Nurse Instructor. This action of the Trained Nurses' Association has been deeply appreciated, and shows that nurses are alive to the value of assisting themselves in time of difficulty.

Nursing Education.

During the past few months the results of two inquiries conducted by Commissions set up by *The Lancet* in England, and by the Canadian Nurses' Association, together with the Canadian Medical Association in Canada, to study the conditions of the training of nurses, and in Canada the economic future and distribution of the nursing profession as well, have been published.

The findings of these Commissions make most interesting reading, and one cannot but be impressed by the similarity of our problems. It is true that the Canadians ask for what we in New Zealand have long enjoyed—a State examination and inspection of training-schools. In England *The Lancet* Commission did not comment on the lack of State inspection, but the nursing journals draw attention to this point and the need there is for the introduction of the inspection of training schools by a "Nurse Inspector." There is no doubt that in New Zealand State supervision over a long period of years has made for an evenness in the standard of our work.

Both reports, however, stress many points of general interest as, for instance, the need for able leadership not only possessing inspirational qualities and administrative capacity, but also educational foresight with a knowledge of the principles of modern education. To obtain this ideal, the student nurses of to-day must be educated women, and *The Lancet* Commission stresses here the need for a modification of the discipline of the Nurses' Home if the right type of girl is to be obtained.

Again the question of the Missionary or ecclesiastical tradition of the nursing profession, together with the military discipline of the past, is gravely considered.

The need for ideals of service are unquestionable, but it is stated in the Canadian report "a misrepresented or perverted notion of the Florence Nightingale tradition has probably tended to frustrate the economic and moral development of the nursing profession in Canada."

Among the common recommendations from these reports are several points which New Zealand might consider. "The training of student nurses is a national service equally as well as is the training of student teachers." At present there is no sum set aside on the budget of any hospital for this purpose, for under the apprentice system now in operation nurses pay with their services for the instruction they receive. Further, both reports stress the need for preliminary training-schools, and properly prepared tutor sisters, the duties of whom should only comprise theoretical instruction. *The Lancet* states there should be "one tutor sister for each sixty nurses in training." The period of preliminary training is set down as three months as a minimum. The *Lancet* also recommends that ward sisters who have pupil nurses under them should be allotted an additional £10 as a recognition that they are part of the teaching staff.

To attain to these standards New Zealand has a long way still to go, for out of thirty training-schools only ten have a full-time Tutor Sister, and only twelve have preliminary-training schools, the longest period of training being six weeks. At the smaller hospitals the organization of preliminary-training schools is a great difficulty, and could probably only be overcome by a combined school, but in the larger hospitals this does not exist.

"More attention should be paid in the average training-school to the health conditions of student nurses, many show negligence in permitting students without adequate training or physical examination to nurse tuberculous patients."

"Student nurses should in the majority of instances be given more training in mental and neurological nursing."

These points and many others considered by both Commissions have been freely discussed at recent conferences of the Trained Nurses' Association in New Zealand, and it is gratifying to feel that, though we are so widely separated from those countries, our plans for the future are along the same lines.

St. Helens Hospitals.

Owing to the retirement of several senior officers and the closure of Wanganui, Gisborne, and Dunedin St. Helens Hospitals as training-schools, there has been a considerable change of staff in all the hospitals. This has added to their difficulties at a time when the strictest economy is being asked. For the future, Auckland, Wellington, Christchurch, and Invercargill will train midwives, and untrained women as maternity nurses. Dunedin, Wanganui, and Gisborne will be staffed with trained midwives. Dunedin will provide case material for medical students, and at Wanganui and Gisborne short refresher courses of a month's duration will be given for practising maternity nurses and midwives; those attending will be given free board and lodging in return for assisting with the routine work of the hospital. The course is planned to give both theoretical and practical instruction, and should prove of great assistance to many nurses who have been trained for some years.

All of the hospitals have been consistently busy. The district service is being extended, and it is hoped to have this aspect of the work more closely supervised in the future. It has been found possible to give a day off a week regularly to all trainees, which has resulted in a more contented staff.

District Nurses.

The number of district nurses employed by the Department is twenty. During the past four years they have paid 23,790 home visits and attended 397 maternity cases, in addition to making 2,479 visits to pas and 849 visits to schools. Maternity and infant welfare among the Maoris forms a large part of their work. Much more, of course, remains to be done. The difficulties of age-long customs, the exceedingly inferior housing in some districts, together with the effects of the economic conditions, entail much patience, perseverance, and ingenuity among nurses working in this sphere. However, the results so far achieved are encouraging, and promise well for the future of the Native race.

In addition, these nurses carry out a monthly visit of inspection to all pas and schools in their district, besides giving care and advice to many sick people. Health propaganda, in addition to the daily teaching in the home, is part of the nurse's work. The effect of these measures is seen in the steady decline in the incidence of many infectious diseases, such as typhoid.

Several conferences of district nurses have been held with the idea of surmounting the overlapping of sections of the nursing staff of the Department, and to further the development of the plan of having one nurse in each area responsible for all activities in her own district. The result has been an extension of the system in successful operation in the Gisborne and Taranaki districts to the North Auckland Peninsula and part of the South Auckland area as from the 1st April of this year.

Unemployment.

Like other professions, nurses have suffered severely during the past year from unemployment. This has greatly increased the work of the Nursing Division, as the number applying for assistance, either by correspondence or interview, has been very large. Many have been helped, though it has been found necessary in some instances for them to accept work at other than their own profession.

Retirement of Officers.

Fourteen nurses have left the service of the Department, three on the occasion of their marriage, one for private reasons, and ten senior officers have been retired on superannuation, the majority of the latter being replaced within the Department with no new appointments. It is with the greatest regret that the Department loses their services after years of faithful work. They all carry with them the good wishes of their fellow-officers.

Before concluding, I would like to express the deep appreciation felt by New Zealand nurses in general of Miss J. Bicknell, my predecessor, who retired as from the 1st April last year. Her sympathy and sense of justice, together with her general interest in promoting the advancement of nursing education throughout New Zealand, have made her term of office a notable one.

In this my first year of office I cannot conclude without expressing my gratitude for the loyal and helpful support given to me not only from the nursing staff of the Department, but also from the various members of the other Divisions, the matrons of the public hospitals, and the nursing profession as a whole. This valued co-operation made possible the achievements of a year distinguished by particularly difficult administrative problems.

M. I. Lambie,
Director, Division of Nursing.

PART VII.—MATERNAL WELFARE.

REPORT OF INSPECTOR OF PRIVATE MATERNITY HOSPITALS.

Dr. T. L. Paget, L.R.C.P., London; M.R.C.P. England.

I have the honour to present my annual report for the year ending 31st March, 1932. As time advances the measures instituted for maternal welfare will, it is confidently anticipated, steadily approach the ideal. This year there are encouraging signs that such measures as described have exerted an appreciable influence towards this end.

MATERNITY AND PRIVATE HOSPITALS.

In addition to the public medical and surgical hospitals, which also admit to the general wards a few emergency maternity cases, cases of puerperal sepsis and obstetrical cases requiring surgical intervention, there are seven St. Helens or State-controlled maternity hospitals providing 121 beds, 75 public maternity hospitals or maternity annexes attached to public hospitals providing 508 beds, 282 private hospitals providing 852 maternity and 1,333 medical and surgical beds. Seventy-three of the maternity hospitals also admit a limited number of medical and surgical cases under strict regulations excluding or restricting the admission of septic surgical cases.

STATISTICS OF MATERNITY HOSPITALS.

Table I.—Summary of Maternity Cases in all Hospitals, 1931.

—	Patients admitted.	Confined at Full Term.	Number of Patients confined between Seventh Month and Full Term.	Total Confinements.	Number of Abortions—*i.e.*, Delivery before the Seventh Month.	Number of Operations.							Hæmorrhages.			Eclampsia.	Number of Deaths of Mothers.	Number of Deaths of Infants who were born alive.	Number of Infants born dead.		Number of Patients transferred to other Hospitals.		Deaths of Transferred Patients.	Maternal Mortality.		
						Instrumental Delivery.	Version.		Dilation of Cervix.	Manual Removal of Placenta.	Cæsarian Section.	Craniotomy, &c.	Accidental Hæmorrhage.	Unavoidable Hæmorrhage (Placenta prævia).	Post-partum Hæmorrhage.				Probably before Labour.	Probably during Labour.	Before Delivery.	After Delivery.		Puerperal Causes.	Non-puerperal Causes.	Total Maternal Mortality.
							External.	Internal.																		
(*a*) *Maternity Hospitals—i.e.*, admitting maternity and urgent miscarriage cases only.																										
Group I: 1–100 cases per annum—																										
Totals	6,729	6,304	320	6,624	53	579	17	32	15	52	2	2	13	24	92	37	6	137	121	59	22	54	9	14	1	15
Percentages to total confinements	..	..	..	..	..	8·74	0·26	0·48	0·23	0·79	0·03	0·03	0·20	0·36	1·39	0·56	0·09	2·07	1·83	0·89	0·33	0·82	0·14	0·21	0·02	0·23
Group II: Over 100 cases per annum—																										
Totals	7,103	6,383	331	6,714	25	686	47	25	35	81	20	10	26	26	82	35	11	118	133	79	14	104	8	15	4	19
Percentages to total confinements	..	..	..	..	..	10·22	0·70	0·37	0·52	1·21	0·30	0·15	0·39	0·39	1·22	0·52	0·16	1·76	1·98	1·18	0·21	1·55	0·12	0·22	0·06	0·28
Group III: St. Helens Hospitals—																										
Totals	2,425	2,202	60	2,262	4	103	9	7	15	23	2	..	15	10	31	5	3	24	41	27	8	30	3	4	2	6
Percentages to total confinements	..	..	..	..	..	4·55	0·40	0·31	0·66	1·02	0·09	..	0·66	0·44	1·37	0·22	0·13	1·06	1·81	1·19	0·35	1·33	0·13	0·18	0·09	0·27
Total, Groups I, II, and III—																										
Totals	16,257	14,889	711	15,600	82	1,399	72	64	65	156	24	12	54	60	205	77	20	279	295	165	44	188	20	33	7	40
Percentages to total confinements	..	..	..	..	..	8·97	0·46	0·41	0·42	1·00	0·15	0·08	0·35	0·38	1·31	0·49	0·13	1·79	1·89	1·06	0·28	1·21	0·13	0·21	0·05	0·26
(*b*) Group IV: *Mixed Hospitals—i.e.*, admitting maternity and medical and surgical cases—																										
Totals	2,778	2,573	118	2,691	66	274	3	6	11	26	4	4	17	11	50	8	10	66	42	24	8	31	2	12	..	12
Percentages to total confinements	..	..	..	..	..	10·18	0·11	0·22	0·41	0·97	0·15	0·15	0·63	0·41	1·86	0·30	0·37	2·45	1·56	0·89	0·30	1·15	0·07	0·45	..	0·45
(*c*) *All Hospitals.*																										
Total all hospitals	19,035	17,462	829	18,291	148	1,673	75	70	76	182	28	16	71	71	255	85	30	345	337	189	52	219	22	45	7	52
Percentages to total confinements	..	..	..	..	..	9·14	0·41	0·38	0·42	1·00	0·15	0·09	0·39	0·39	1·94	0·46	0·16	1·89	1·84	1·03	0·28	1·19	0·12	0·24	0·04	0·28
(*d*) *Cases confined in Private Houses and General Wards of Public Hospitals.*																										
Totals	..	..	..	8,851	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	30
Percentages to total confinements	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0·33

Table I sets out the number of cases admitted to, work undertaken by, and the puerperal and maternal mortality figures of these hospitals, also the maternal mortality-rate of all cases admitted elsewhere, after correcting the statistics by the exclusion of abortion and ectopic gestation which are not admitted to maternity hospitals.

I must explain that the deaths entered under the heading " maternal mortality " are deaths of pregnant or parturient women dying from non-puerperal causes. The cases entered under this heading include two cases of advanced phthisis, three cases of old-standing heart-disease, one ruptured aorta, and one hæmorrhage from a gastric ulcer. It is probable that the detection of some of these conditions early in pregnancy might have prevented some of these deaths. This emphasizes the necessity for skilled ante-natal care and prompt treatment.

The death-rate for the mixed hospitals is approximately half what it was prior to the restrictions imposed regarding the admission of septic surgical cases in 1930. It is, however, above the average for other hospitals.

The statistical returns confirm my opinion that the majority of maternity hospitals are conducted in a satisfactory manner, are well equipped, and are playing an important part in promoting maternal welfare.

The outstanding need in regard to all public maternity hospitals is more extensive, more systematic, and a higher quality of ante-natal care, particularly with regard to closer supervision by well qualified obstetricians.

The importance of maintaining a high standard of efficiency in our maternity hospitals is shown by the fact that 18,291 out of 27,431 confinements were conducted in them.

ST. HELENS HOSPITALS.

INTERNAL DEPARTMENT :—

Table II.—St. Helens Hospitals, General Statistics, 1931.

—	Auckland.	Christchurch.	Dunedin.	Gisborne.	Invercargill.	Wanganui.	Wellington.	Total.	Percentage to Total Confinements.
A.—INTERN DEPARTMENTS.									
Total deliveries	572	325	179	206	239	195	546	2,262	..
Primiparæ	202	101	36	48	44	50	169	650	..
Multiparæ	370	224	143	158	195	145	377	1,612	..
Presentations—									
Vertex	547	308	162	191	234	183	513	2,138	94·52
Occipito posterior	6	7	11	10	2	9	21	66	2·92
Face	3	3	2	..	..	..	..	7	0·31
Brow	2	..	..	..	..	1	..	3	0·13
Breech	23	10	5	4	9	3	9	63	2·79
Transverse	1	..	..	2	..	..	..	3	0·13
Twins	8	3	1	3	3	1	4	23	1·01
Complications of pregnancy—									
Hyperemesis	..	..	..	2	..	..	2	4	0·18
Hydramnios	..	6	8	7	..	3	1	25	1·11
Pre-eclamptic toxæmia	22	..	..	..	..	3	24	49	2·17
Eclampsia	1	..	..	..	..	..	4	5	0·22
Nephritic toxæmia	1	..	1	6	1	3	1	13	0·57
Hæmorrhages—									
Unavoidable	4	3	1	1	1	1	1	12	0·53
Accidental, external	4	..	1	2	..	3	1	10	0·44
Accidental, internal	..	1	2	..	..	..	..	3	0·13
Post-partum, atonic	9	2	1	3	1	2	14	32	1·41
Lacerations of genital tract—									
Perinæum	156	32	4	8	19	24	118	361	15·96
Cervix	10	..	..	1	..	..	..	11	0·49
Uterus	..	..	..	..	..	..	..	..	..
Contracted pelvis, inlet	16	..	..	2	..	..	6	24	1·06
Contracted pelvis, outlet	3	2	..	1	4	2	..	12	0·53
Prolapse of cord	2	2	..	..	..	..	..	4	0·18
Complications of puerperium—									
Sepsis, local	4	..	..	..	3	1	..	8	0·35
Sepsis, general	2	..	..	..	..	..	..	2	0·09
Pulmonary embolism	1	..	..	..	..	..	..	1	0·04
Insanity	..	..	..	..	..	..	1	1	0·04
Crural phlegmasia, venous	..	..	..	..	..	..	1	1	0·04
Crural phlegmasia, lymphatic	..	..	..	..	..	..	1	1	0·04
Mastitis	2	..	..	..	1	3	3	9	0·40

Table II.—St. Helens Hospitals.—General Statistics, 1931—continued.

—	Auckland.	Christchurch.	Dunedin.	Gisborne.	Invercargill.	Wanganui.	Wellington.	Total.	Percentage to Total Confinements.
A.—Intern Departments—*continued.*									
Operations—									
Internal pelvimetry	..	..	..	..	..	..	..	..	..
Induction of labour	11	4	3	..	..	..	9	27	1·19
Forceps	40	12	3	9	3	10	26	103	4·55
Version	10	3	..	2	1	1	2	19	0·84
Manual removal of placenta	..	..	..	3	3	3	9	18	0·80
Cæsarian section	..	..	..	..	..	..	..	..	..
Abdominal conservative	2	..	..	..	..	..	..	2	0·09
Abdominal radical	..	..	..	..	..	..	..	..	..
Pubiotomy	..	..	..	..	..	..	..	..	..
Craniotomy	..	..	..	..	..	..	..	..	..
Cleidotomy	..	..	..	..	..	..	..	..	..
Decapitation	..	..	..	..	..	..	..	..	..
Morbidity—Total	17	10	2	3	6	9	19	66	2·92
Mortality—Total	2	..	..	..	..	1	3	6	0·27
Infant statistics—									
Total births	582	328	180	207	245	196	550	2,288	..
Premature—									
Alive	8	8	3	7	6	2	13	47	2·08
Dead	5	..	..	3	..	3	1	12	0·53
Full term—									
Alive	552	307	175	197	234	185	531	2,181	96·42
Dead	15	13	..	1	5	5	14	53	2·34
Children born alive who died in hospital	4	4	..	3	3	2	8	24	1·06
Total born dead or died in hospital	20	17	2	7	8	10	21	85	3·76
B.—Extern Departments.									
Total attendances	177	156	34	3	4	17	77	468	..
Primiparæ	..	5	1	1	..	1	..	8	3·08
Multiparæ	177	150	29	2	4	12	77	451	96·37
Forceps application	8	6	2	..	..	..	..	16	3·42
Total morbidity	5	4	..	..	..	..	..	9	1·92
Total mortality	1	..	..	..	..	..	..	1	0·21
C.—Ante-natal Clinics.									
First visits—									
Primiparæ	207	135	34	42	51	40	166	675	..
Multiparæ	563	381	151	149	178	102	516	2,040	..
Return visits	3,326	2,038	398	352	570	343	2,802	9,829	..
Outside vists	121	158	14	15	10	8	193	519	..
Obstetrical outfits sterilized	155	..	25	1	14	9	96	300	..

Table II and Group III of Table I show the tabulated results of these hospitals. The number of deaths was six, of which four were attributable to puerperal causes, namely: 1 eclampsia, 1 embolism, 1 post partum hæmorrhage, 1 to status epilepticus (? eclampsia), and two to non-puerperal causes—namely, advanced phthisis.

The forceps rate was 4·55.

District Nursing Department:—

These Departments attached to the Auckland, Wellington, and Christchurch St. Helens Hospitals have done useful work and been most helpful in giving medical attention to the poorer classes and at the same time preventing overcrowding of these institutions which was always a difficult matter to deal with, especially during times of economic stress.

ST. HELENS ANTE-NATAL CLINICS :—

Table III.—St. Helens Hospitals Ante-natal Clinics.

St. Helens Hospitals.	Period.	Total Confinements.	Eclampsia.		Still-births.		Deaths of Infants in Hospital (under fourteen days).		Total Still-births and Deaths of Infants in Hospital.	
			Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
Totals ..	1918–1924 ..	9,843	66	0·67	334	3·39	199	2·02	533	5·41
	1925–1931 ..	16,020	49	0·31	439	2·74	239	1·49	678	4·23

The figures set out in this table are evidence of the effect of systematic ante-natal care in the reduction of cases of eclampsia, still-births, and deaths of infants under fourteen days of age. The table shows the percentage of the above cases for the seven-year period 1918–1924, during which there were no public ante-natal clinics attached to these hospitals; also for the seven-year period 1925–1931, at the beginning of which public ante-natal clinics were instituted, making possible the more complete and systematic supervision of expectant mothers and a higher standard of ante-natal care generally.

The reduction in the eclampsia rate of over 50 per cent., and in the deaths of infants from the two causes mentioned by over 20 per cent., is satisfactory evidence of the effective nature of the work done in St. Helens Hospitals. I have no doubt that similar reductions in eclampsia and the deaths of infants could be shown in a number of the public maternity hospitals. Unfortunately, however, I am unable to show these results statistically, as the length of time these hospitals have been in existence is insufficient for statistical methods to be applied, and furthermore the quality of the ante-natal work done in different public maternity hospitals varies considerably, many not having succeeded in bringing their ante-natal work up to the necessary standard, though there is evidence that this branch of the work is developing fairly satisfactorily.

I trust that those Boards who have not made special efforts in this direction will be encouraged by the results shown in Table III to increase their efforts to the great benefit of maternal welfare.

PUBLIC ANTE-NATAL CLINICS.

Table IV.—Ante-natal Clinics.

Year.	Number of Clinics.	New Cases.	Total Attendances.	Average Number of Attendances by each Patient.	Outfits sterilized.
1925	16	2,289	7,816	3·0	..
1926	20	3,238	12,554	3·8	401
1927	20	3,919	15,406	4·5	515
1928	21	5,050	20,740	4·11	728
1929	24	5,177	17,555	3·39	924
1930	25	6,027	22,078	3·66	1,106
1931	28	6,306	22,869	3·63	1,221

Table IV shows a steady increase in the number of patients attending since 1925, also in the number of labour outfits sterilized through their agency. This latter activity no doubt has had a considerable effect in reducing the puerperal sepsis rate which is so marked a feature of the maternal mortality statistics during the last five years.

I regret that the work of these clinics has not been reflected in the reduction of the general eclampsia rate for New Zealand. This rate is one of the highest in the world and, while it is possible that there may be influences in New Zealand that make it more difficult to control than elsewhere, I am confident that the difficulties are not insuperable, and that more extensive use of ante-natal clinics by expectant mothers, and a higher degree of efficiency in the work of these clinics, will eventually have the desired result.

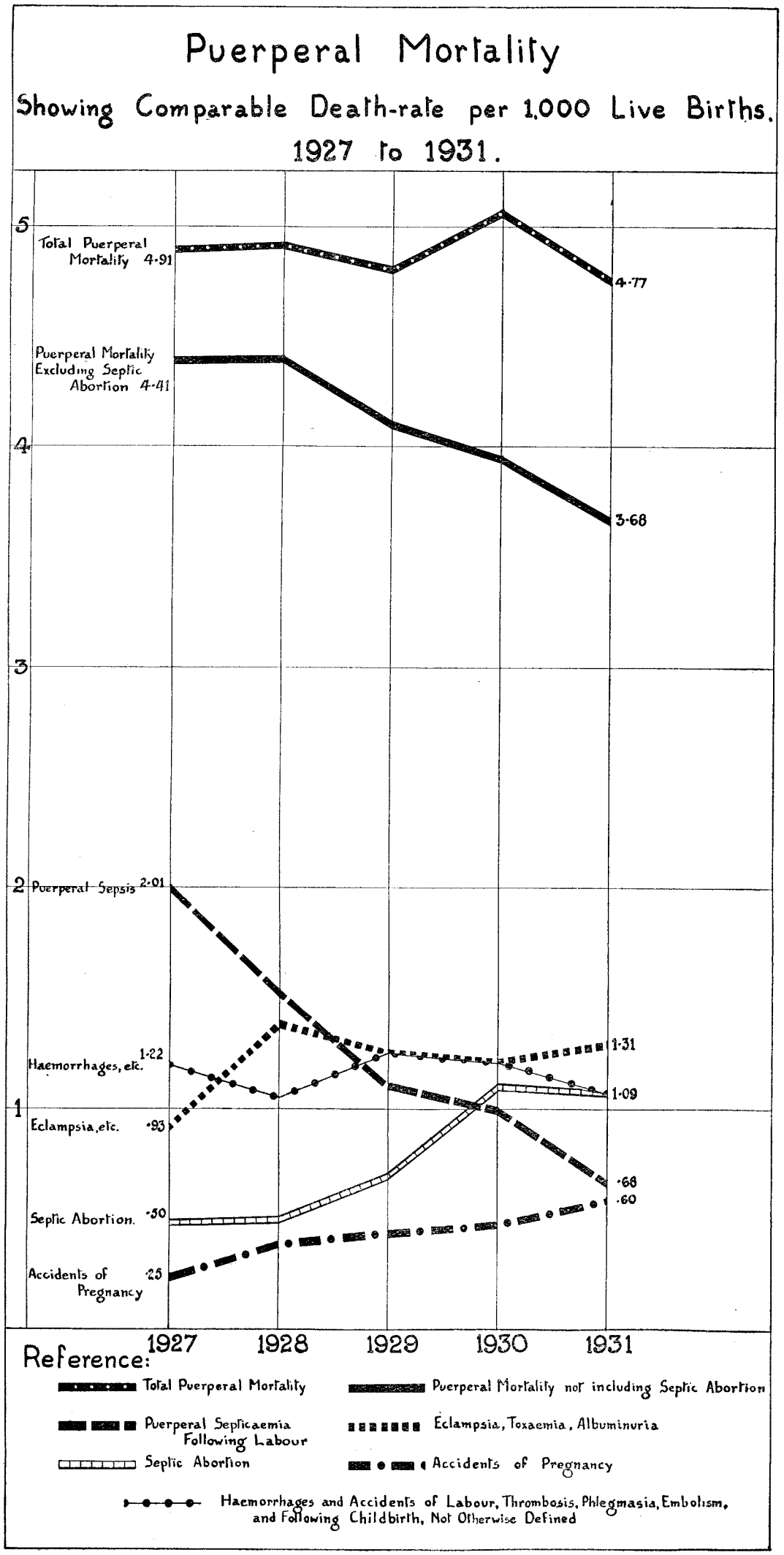
I wish to emphasize that the two outstanding needs are a greater degree of medical supervision by skilled obstetricians in addition to propaganda by the Hospital Boards and their officers to educate expectant mothers to the necessity for making full use of the facilities provided.

INVESTIGATION OF CASES OF PUERPERAL SEPSIS, 1931.

One hundred and thirty-one cases were investigated by the Medical Officers of Health during the year. The results show that the death-rate for these cases was 12·98 per cent.; 62·60 per cent. of the labours were said to be normal; in 27·48 per cent. of the cases the infant was delivered artificially; and in 16·79 per cent. delivery of the placenta was manual. Vaginal examinations were made in 59·53 per cent. of the cases.

These figures go to show what a very great part vaginal examinations and internal manipulations play in the introduction of sepsis, and the importance not only of limiting them to the utmost, consistent with securing safe delivery, but also of taking as complete precautions to maintain asepsis during any vaginal examinations or internal manipulations as would be taken for a surgical operation. The increasing recognition of this fact has no doubt been largely responsible for the very marked drop in the maternal mortality-rate for puerperal sepsis following childbirth during the last five years.

A Review of the Maternal Welfare Campaign :—



The accompanying graph shows the variations in the maternal mortality-rate for the five-year period following special activities of the Health Department to promote maternal welfare.

Before discussing the results shown in the graph, it will be an advantage to consider the history of this special activity.

In 1921 a committee of the Board of Health inquired into the question of the high maternal mortality-rate in New Zealand and the means of reducing it. Following upon an outbreak of puerperal sepsis in the Kelvin Hospital the Kelvin Hospital Commission was set up to consider the influence of such maternity hospitals upon puerperal sepsis and to make recommendations with regard to eliminating the risk.

Efforts were at once made by the Health Department to put the recommendations into effect, and, as a further effort, in 1924 Dr. H. Jellett was appointed Consulting Obstetrician to the Department, Dr. T. L. Paget, Inspector of Private and Maternity Hospitals, and Dr. Elaine Gurr, Officer in Charge of Ante-natal clinics.

The following action was taken: The Private Hospital Regulations were redrafted, the following being the main alterations:—

Registers with temperature charts which are required to be entered twice daily were issued to all maternity hospitals.

Notification to be given by the hospital licensee to the Medical Officer of Health whenever a case of puerperal pyrexia occurred, and isolation required for such cases as well as cases of morbidity.

Disinfection of rooms and equipment used by such patients to be carried out to satisfaction of the Medical Officer of Health before being put to further use. The necessary details were furnished to the licensees.

The details of personal disinfection, for any nurse attending such cases before resuming duty were prescribed.

The maximum number of patients to be nursed by each midwife and maternity nurse was stipulated.

Approved apparatus for sterilizing dressings, utensils, &c., as part of the equipment of every hospital of five beds or over was required.

The Midwives Regulations were also revised, the main features being an attempt to secure freedom from infection by the establishment of a standard aseptic technique and the reduction to the minimum of internal examinations and manipulations by midwives and maternity nurses.

In 1925 the Nurses and Midwives Registration Act was passed. This Act places the control of training and registration of midwives and maternity nurses in the hands of a Board consisting of the Director-General of Health, the Director, Division of Nursing of the Health Department, together with representatives of the medical and nursing professions and of the Hospital Boards. The Act provides for the registration of all midwives and maternity nurses, and makes it illegal for any unregistered woman to engage in practice as a maternity nurse except in cases of emergency or under special certificate from the medical practitioner attending the case.

Under the direction of the Consulting Obstetrician to the Department, an improved scheme of training for midwives and maternity nurses was adopted. This, together with pamphlets on the general principles of maternity nursing, the aseptic technique and management of labour and the puerperium, and instructions for the disinfection of nurses and hospitals after the occurrence of sepsis, created a uniform standard in the methods of nursing and in the precautions to be taken to prevent the occurrence and spread of sepsis. These methods were taught in training schools and introduced to all maternity hospitals and to practising midwives under the instructions of the Inspector of Hospitals, Medical Officers of Health and Nurse Inspectors.

To the Inspector of Hospitals fell the duty of visiting all the private maternity hospitals in the Dominion (some 250 in number) with the object of co-ordinating the work of Medical Officers of Health and Nurse Inspectors and bringing these hospitals up to the required standard.

Very few of these hospitals had the necessary equipment for sterilizing dressings, basins, bed-pans, and other utensils. In the few cases where the sterilization of dressings and utensils was carried out the sterilized articles were frequently stored in unsterilized biscuit-tins on shelves and tables covered with unsterilized cloths or, still worse, were stored on shelves in cupboards under sinks alongside unsterilized bed-pans in sink-rooms where these foecally contaminated articles were emptied and washed. So-called sterilized water was often kept in unsterilized jugs. Bed-pans and chambers were insufficient in number, and were taken round from patient to patient for panning purposes after being roughly cleaned with a mop not kept in disinfectant and admirably, though unintentionally, designed to spread sepsis to other patients in a hospital if a case of sepsis occurred or was admitted.

These numerous means of spreading sepsis had to be eliminated, and an idea of what asepsis meant and how to carry it out introduced to hundreds of midwives and maternity nurses, many of whom had had no training. Incidentally, many medical men regarded the practice of asepsis as, at best, a desirable ideal impossible of attainment, and not a few were politely scornful.

Finally, the majority of maternity hospitals were brought up to a fairly good standard and a few which did not attain the necessary standard were closed.

The Officer in Charge of Ante-Natal Clinics was engaged in training nurses for ante-natal clinic work and organizing and conducting public ante-natal clinics in connection with the St. Helens Hospitals and various branches of the Plunket Society; also in publicity work regarding the benefit of this branch of obstetrics to the expectant mother.

Briefly the initial work consisted of—

(1) The registration of all maternity nurses in addition to the registration of midwives, which was already in force.
(2) The adoption of a higher standard of training for midwives and maternity nurses under the control of the Nurses and Midwives Registration Board, acting with the advice of the Consulting Obstetrician.
(3) The adoption of a standard aseptic technique as applied to the conduct of labour and the puerperium.
(4) A system of inspection of all private and public maternity hospitals by a Medical Officer co-ordinating the work of the Medical Officers of Health and Nurse Inspectors for each district.
(5) The establishment of a number of free public ante-natal clinics in charge of specially trained nurses acting under the direction of the Medical Officer of the hospital to which the clinic was attached, or the patient's own medical attendant.

The activities of the Health Department to promote maternal welfare have been supplemented by the practising members of the medical profession, the British Medical Association, the Obstetrical Society, the Otago Medical School, and the Plunket Society, to all of whom a large measure of the credit for any results obtained must be accorded. Special acknowledgment is also due to members of the medical profession who responded to the Consulting Obstetrician's efforts to reduce to a minimum interference with the natural course of labour. The Obstetrical Society has also done valuable work in bringing before the profession the necessity for better ante-natal care, and before the Otago Medical School the need for greater facilities for teaching the art and science of obstetrics. To promote the latter a fund of £31,700 was raised by public subscription and subsidized by a £10,000 grant from the Government. This fund was used to endow a Chair of Obstetrics at the Otago University and provide travelling scholarships for the study of obstetric methods abroad. Since 1924 Hospital Boards have provided further facilities by increasing the number of maternity beds from 221 to 503 in addition to the establishment of more district maternity services conducted by registered midwives. The Plunket Society has established nine ante-natal clinics in connection with their infant-welfare clinics.

The results of the activities above recorded are very clearly shown in the accompanying graph. It will be noted that the outstanding features are the marked decrease in deaths from puerperal sepsis following childbirth and an equally marked increase in the deaths from septic abortion particularly during the last two years.

Puerperal Sepsis following Childbirth :—

The steady and continuous decrease in the deaths from puerperal sepsis during the period following childbirth may be safely ascribed to the measures taken as outlined above. In order of importance I would place them as follows: (1) The teaching and application of the principles of surgical asepsis to the practice of obstetrics. (2) The reduction in vaginal examinations, internal manipulations, and instrumental deliveries, the rate of which latter, as shown by hospital statistics, has fallen from 14·5 in 1925 to 9·14 in 1931. The avoidance of instrumental deliveries has undoubtedly been made easier to the often harrassed general practitioner by teaching midwives and maternity nurses to relieve pain by the use of anæsthetics prior to the arrival of the medical attendant; and the reduction of vaginal examinations by teaching methods of palpation and rectal examination as substitutes for the former more dangerous methods of the diagnosis and correction of displacements. (3) Almost entire elimination of epidemic sepsis from maternity hospitals, particularly by the exclusion of septic surgical cases from hospitals admitting maternity and other cases together. (4) By systematic ante-natal care detecting and eliminating septic foci in the expectant mother and by the same means detecting many abnormalities the correction of which helps to avoid a number of artificial deliveries.

I regard the very steady reduction in the puerperal sepsis rate as a distinct encouragement to continue on the general lines initiated in 1924. Further development along these lines, together with the adoption of any new methods of preventing infection that scientific research may place at our disposal, should ensure a further reduction in this essentially preventable infectious disease.

Septic Abortion :—

The problem created by the rise in the death-rate from septic abortion is an entirely different one from that due to sepsis following childbirth. There can be no doubt that the majority of these cases are due to the practice of criminal abortion, the incentives to the practice of which are mainly social and economic. The economic factor is emphasized by the marked rise in the number of deaths occurring since the year 1928 and particularly in the period 1929–30. The fact that twenty-six out of thirty cases in 1930 and *twenty-six* out of *twenty-nine* in 1931 occurred in married women excludes sexual immorality as an important factor.

Separate classification of the above two causes of death is of utmost importance for purposes of comparison with other countries. Unfortunately, England is the only country for which I have been able to obtain statistical results based on the separation of these two causes of death. In 1929 England's puerperal mortality-rate after excluding septic abortion was 3·96. The New Zealand rate for 1930 was the same and for 1931, 3·68. The means of decreasing this dangerous method of limiting families can best be dealt with by societies concerned with the welfare of women. If the enormous risk to life caused by criminal abortion was appreciated by those concerned it might cause some women at least to abandon that method of meeting a difficult situation.

Eclampsia and Toxæmia :—

The result of the maternal welfare campaign upon this cause of death is disappointing. Table IV shows a steady increase in the establishment and use of public ante-natal clinics. In 1931, 6,306 patients attended these clinics, with an average attendance of 3·63 per patient, and yet our eclampsia rate is deplorable. The Obstetrical Society's report also records greater attention on the part of their members to this branch of obstetrics, despite which it is recorded that thirty-seven cases of eclampsia occurred in 8,504 confinements. These results are discouraging when compared with the very high standard attained by the East London Maternity Hospital of 20,000 consecutive cases without a death from this disease. However, reasonable hope for better results is provided in Table III, which compares a seven-years record of eclampsia and still-births and neo-natal deaths in St. Helens Hospitals prior to the institution of public ante-natal clinics with a record of the seven years subsequent to their establishment.

This table shows a reduction in the cases of eclampsia of over 50 per cent. in the latter period and a substantial reduction in the still-birth rate and neo-natal death-rate. I have no doubt that similar results are being obtained by other hospitals, though I am unable to record them, as the period during which they have been established is too short to provide sufficient numbers for reliable statistics. The problem of reducing the eclampsia death-rate appears to be one presenting peculiar difficulties in New Zealand. One of the main factors of the high eclampsia rate is possibly the excessive consumption of meat, due principally to it being one of the cheapest articles of diet. I am much indebted to Dr. J. P. S. Jamieson, of Nelson, for a very interesting analysis of one hundred cases of eclampsia notified by their medical attendants during 1930. As, however, it is Dr. Jamieson's intention to publish details in the *New Zealand Medical Journal*, I need only state that his analysis emphasizes the need for more complete and generally better ante-natal care as a means of preventing the occurrence of many of these cases.

Accidents of Pregnancy :—

The rise in the death-rate from this cause as shown in the graph is due to an increase in the number of deaths from abortion not returned as being septic. It is probable that the increase in practice of criminal abortion has adversely influenced the death-rate under this heading.

Total Maternal Death-rate :—

The variations in this rate as depicted in the upper line of the graph shows little improvement due, as already pointed out, to the increased number of septic abortions. The lower line, which shows the rate uninfluenced by the latter cause, indicates a satisfactory drop from 4·41 per thousand in 1927 to 3·68 per thousand in 1931, and since " nothing succeeds like success " it may be expected that this result will provide a spur to further action with the hope of greater improvement in the future. Our efforts must be maintained or increased if improvement is to continue.

Before closing, I wish to express my appreciation of the valuable advice so readily given me by Dr. Jellett during his term as Consulting Obstetrician to the Health Department. Besides the assistance Dr. Jellett so kindly gave to me personally, his work in revising the methods of the midwives and maternity nurses training-schools and his vigorous campaign to reduce the forceps rate and generally improve obstetric methods, has been of the greatest value, and has had a very great influence on the results recorded. I sincerely regret the loss of his valuable co-operation.

APPENDIX.

UNDULANT FEVER IN NEW ZEALAND.

By Dr. F. S. Maclean, Medical Officer of Health.

Between August and October, 1931, an investigation was made into the extent of undulant fever prevalent in New Zealand. For this purpose inquiries were made from Hospital Superintendents, pathologists, and general practitioners regarding past cases of the disease; and some 109 dairy-farms were visited and inquiries made as to the existence of contagious abortion among the herds, and the extent of sickness among the people living and working on the farms. Where possible, blood-samples were obtained from farm workers and investigated for the presence of specific agglutinins.

Very considerable help was afforded by Dr. Lynch and his staff at the Wellington Hospital Laboratory, where the blood-samples were examined, and by Mr. C. S. M. Hopkirk, of the Wallaceville Laboratory, who examined a number of blood-samples from cows, and supplied general information concerning the disease in cattle. Mr. Wilson, also of the Department of Agriculture, assisted considerably in the direction of collecting blood from cows.

I.—Extent of Abortus Infection among New Zealand Herds.

Contagious abortion has been prevalent among New Zealand herds for more than thirty years, and all the information at the disposal of the Department of Agriculture goes to show that the majority of dairy herds at the present time are infected. Once infected the cows may remain so, although they no longer abort, and may continue to give infected milk. They may also at each time of calving have infected uterine discharges to which the dairy-farm worker is exposed.

In the present inquiry definite evidence of infection in ninety-eight herds was obtained either by a history of abortion or by positive laboratory tests, one herd was proved to be not infected, while the remaining ten were not able to be tested.

II.—Undulant Fever in New Zealand.

Up to November, 1931, particulars were obtained of thirty-six cases of undulant fever occurring within the last three years. Of the persons affected twenty-seven were males and nine females, and 80 per cent. of the cases occurred in the Auckland, Waikato, and Wanganui-Horowhenua districts. Three cases only were reported from the South Island. Most cases were mild in type, but one death occurred. The occupations concerned were as follows: Dairy-farm workers, 17 cases; dairy-farmers' wives or children, 4; all other occupations, 15.

Included in the fifteen "other occupations" were a veterinary surgeon, a slaughterman, and a bacteriologist, all of whom had been in direct contact with infected cows or their discharges.

As dairy-farm workers represent approximately 5 per cent. of the total population, and the total dairy-farm population only 12·7 per cent. of the total population, it is apparent that this class of the community is exposed to a special risk as regards this disease. Infection by contact with infected animals must therefore involve a greater risk than does the drinking of infected milk to which the greater part of the general population is exposed.

III.—Infection among Dairy-farm Workers.

During the investigation inquiry was made regarding the health of 326 farm workers and 322 persons living but not working on dairy-farms. Of the 326 workers 247 gave no history of any illness, thirty-one had suffered from more or less severe forms of "influenza," and forty-eight from other diseases. Influenza is a disease most easily confused with undulant fever, and there is a great likelihood of mild cases of the latter being regarded as influenza by the patients themselves and even by medical men. Of the thirty-one "influenza" patients fourteen had been confined to bed for a week or longer, and the remaining seventeen had also had bed treatment for shorter periods. In two or three cases the symptoms and course of the illness were suggestive of undulant fever. The "influenza" rate of farm workers compared with adult farm residents not working among cows was as follows: 326 farm workers accounted for thirty-one cases of "influenza"; attack rate, 9·5 per cent. 140 other adults accounted for five cases of "influenza"; attack rate, 3·6 per cent.

The other forty-eight diseases mentioned may be classified as follows: Rheumatism (all forms including neuritis), 23 cases; pneumonia, 7; pleurisy, 3; bronchitis, 1; appendicitis 4; hepatitis and jaundice, 3; other diseases, 7.

Rheumatic symptoms are a common accompaniment of undulant fever, but in most of the above cases the rheumatism was of a long-standing chronic nature. In one case only was there a strong likelihood of undulant fever having occurred.

As regards lung conditions the literature of the disease records pulmonary abscess and bronchopneumonia as possible complications. In the Danish cases reported by Kristensen bronchitis was a frequent symptom of undulant fever. In this series two workers who had suffered from pneumonia, one who had had bronchitis, and one pleurisy, showed the presence of agglutinins in their blood. The possibility of their having suffered from undulant fever cannot therefore be lightly dismissed.

Appendicitis, in common with other acute abdominal conditions, is frequently confused with undulant fever. In one of the four cases mentioned agglutinins were present in the blood, and full particulars of the other three were not available.

It is on record that undulant fever has been wrongly diagnosed as cholecystitis or liver abscess. The two cases of hepatitis and one of jaundice reported in this series may possibly have been wrongly diagnosed.

As mentioned above, 104 blood-samples were obtained and tested for the presence of specific agglutinins. In seventeen sera agglutinins were found to be present in dilutions ranging from 1/32 to 1/4000. Ten of the persons concerned gave no history of illness, but the remaining seven had suffered from one or other of the diseases mentioned above.

These agglutinins tend to disappear possibly within twelve months of an infection, and it is probable therefore that 17 per cent. does not represent the total percentage of farm workers who at one time or another have had agglutinins in their blood. Investigations made at two of the largest bacteriological laboratories on upwards of two thousand sera taken from the general population in New Zealand go to show that the percentage containing Brucella agglutinins is not more than 1 per cent. It is evident, therefore, that farm workers and others coming into contact with infected animals, as compared with the general population, are exposed to very much greater chances of infection. This may vary from a serious illness of some weeks' duration to attacks of minor indisposition or even a complete absence of symptoms. Ambulatory undulant fever is known to occur, and it is not unreasonable to suppose that there exists among dairy-farmers a certain amount of Brucella infection not severe enough to send the sufferer to bed, but sufficient to cause at least some temporary inconvenience and loss of efficiency. The present tendency to label all minor illnesses "influenza" does much to obscure the existence of such a similar disease as undulant fever.

IV.—Summary and Conclusions.

(1) Contagious abortion has existed in New Zealand during more than thirty years, and is now very widespread.

(2) The disease as it affects man in New Zealand is clinically mild, and the infectivity is low.

(3) Most dairy-farm workers, and others coming into direct contact with cattle, are exposed to the risk of direct infection with Brucella abortus. The general population is exposed to a very much smaller degree of risk through consumption of raw infected milk.

(4) Thirty-six diagnosed cases of undulant fever during the past three years have been noted. It may be considered an occupational disease of the dairy-farming industry.

(5) A survey was made of 109 dairy-farms taken more or less at random.

(6) An undue amount of "influenza" was reported among 326 dairy-farm workers as compared with 322 other residents on the same farms. Certain other diseases were reported, some of which bear some resemblance to undulant fever.

(7) Seventeen per cent. of dairy-farm workers were found to have specific agglutinins in their blood, as compared with approximately 1 per cent. of the general population.

(8) It is probable that a certain amount of clinical undulant fever is undiagnosed, and that a mild ambulant form of the disease accounts for some inconvenience and loss of efficiency among workers on dairy-farms.

THE SANITARY RECONSTRUCTION OF NAPIER AND HASTINGS.

By Dr. F. S. Maclean, Medical Officer of Health.

Repair of Earthquake Damage.

The most notable event of the year has been the reconstruction of the water and sewage systems in Napier. To recapitulate briefly the damage done by the earthquake it may be stated that all the large artesian wells were thrown temporarily out of commission through breaks in the bores, the pumping-station was wrecked, the steel water-tower was demolished, and both high- and low-level concrete reservoirs were damaged by cracks. In addition, numerous breaks occurred in the reticulating mains, resulting in great loss of water. As regards the sewage system, that portion serving over eight hundred houses in Napier South was so badly damaged as to necessitate complete renewal: the compressed-air ejectors were thrown out of action through breaks in the air-main, and this factor prevented sewage from the hill areas reaching the outfalls. In addition, the majority of house-fittings were damaged, and many drains and sewers in other parts of the borough were found to be blocked.

Within a week the pumping-station was put into commission, but the supply of water from the wells was greatly reduced, and was insufficient to keep the pumps fully occupied. This, combined with the great leakage of water from faulty reservoirs and mains, enabled an intermittent supply only being maintained for some weeks. Chlorination of the water was instituted to guard against the risk of pollution between the wells and the pumping-station. In this portion of the system the water was conveyed at very low pressure through a badly cracked concrete pipe.

The supply improved as leaking mains were discovered and sealed, and the artesian bores repaired. To assist the latter, three new 6 in. bores were sunk to a distance of about 300 ft., a cast-iron main replaced the shattered concrete one, and a booster pump was installed to facilitate

the flow from the walls to the pumping-station. The supply is now drawn from three 8 in. bores in McLean Park, the three new 6 in. bores, and a group of eight smaller bores in Nelson Park. The old wells in Munro Street which formed the original supply are not now being drawn upon.

A new pumping-station has been built at McLean Park, and will shortly replace the old station. It is a small, compact, earthquake-proof building equipped with four electric pumps capable of delivering 270,000 gallons an hour. It is centrally situated as regards the wells, so that a booster pump will no longer be necessary.

The low-pressure reservoir at Cameron Road was badly cracked as a result of the earthquake, and is considered moreover to be unsafe on account of the nature of the ground upon which it rests. It has accordingly been abandoned and the high-pressure reservoir is being trebled in size by the addition of two further chambers. These are circular in shape and heavily reinforced with steel. The capacity of the new reservoir will be two million gallons. The steel water-tower which serves a few houses on the highest levels was rebuilt by May.

Chlorination of the Napier water was continued until all reasonable chance of pollution appeared to be over. With the exclusion of the concrete main between wells and pumping-station, and the maintenance of a constant positive pressure in the reticulation mains, the chances of pollution appeared to have ceased by October. An analysis of water taken from two points on the reticulation system at that time, however, showed the presence of nitrites, and chlorination was continued until the source of the nitrites could be discovered. Up till that time the water had been singularly free from evidence of this nature even immediately following the earthquake. On the 28th January eight samples were taken—one at the pumping-station before chlorination, and the remaining seven at different points on the reticulating mains. These were tested for nitrites at intervals of a few days on eight successive occasions, each sample remaining meanwhile in its container. One sample only was free from nitrites during the whole period of test, and no sample showed nitrites to be present at every time of testing. In some cases the nitrites were first absent, appeared in small quantities, and then disappeared again. Whatever the explanation may be, it is evidently not the effect of sewage pollution, and shows that further chlorination of the water is unnecessary.

Repairs to the sewage system were put in hand at an early date. The main sewage-pumping station was practically undamaged; temporary outfalls were made; and by the 23rd February the sewers draining a considerable proportion of the hills, and most of the flat area east of the railway were again functioning. The repair of the air-mains, and ability to operate the compressed-air ejectors, as well as the relaying of certain main sewers further improved conditions, so that by May the sewage system was again in use over a great part of the borough. The chief exceptions were two large areas in Napier South and Port Ahuriri, and the central business portion of the town which had been completely demolished by earthquake and fire. To serve the two residential areas mentioned above, a nightsoil-collection service was installed in April and operated to a decreasing extent for about nine months.

The alteration in levels and the extensive nature of the damage sustained by the sewers necessitated the abandonment of the old system in Napier South and Port Ahuriri and the designing and laying of a completely new one. The old sewers were able to deal with household waste waters to some extent, and this fact, combined with the institution of the nightsoil service, enabled householders in these areas to reoccupy their houses with a considerably degree of comfort.

The work in connection with the new sewers was let in a number of different contracts, and the work pushed on at a rapid rate. In addition, the Borough Council did a large amount of sewerage work under the No. 5 Unemployment scheme. By the end of July 33,000 ft. of sewer had been relaid; the high-water mark of construction was reached in October with a total for the month of over 26,000 ft.; and by the end of December, 86,000 ft. of new sewer was completed. House connections were made concurrently with work on the sewers, and by the end of December there were few houses left without sewer connections. The work of inspection naturally fell heavily on the Council staff, and great credit is due to them for the long hours they worked to prevent any unnecessary delays. Up to the end of March an additional 17,000 ft. of new sewer was completed—chiefly in the business portion of the town—making a grand total for the year of over 103,000 ft., or nearly twenty miles of sewer. In addition to the relaying of sewers, a number of the compressed-air ejectors have been replaced by electrically operated pumps, a new and improved pumping-station has been built in McLean Park, and a new and much larger receiving-well has been constructed at the main sewage pumping-station. A great deal of work also in connection with storm-water drains is being carried out, both to repair damage and to correct difficulties that have arisen from the alteration in levels.

Although they have operated more or less continuously, the sewers in the hill area have required a great deal of attention, and will continue to do so for some time to come. Owing to the firmer nature of the ground and the greater fall provided, these sewers escaped the shattering forces affecting those in made-up ground, and showed less tendency to block through the entrance of silt. They did not, however, escape damage, and, in addition, have since revealed numerous blockages caused by the entrance of roots through cracks—even those too fine to be detected by examination. The following extract from the drainage inspector's report will illustrate this: "A sewer off Goldsmith Road which was uncovered for inspection, showed roots to have penetrated almost every joint, although not one pipe was cracked throughout the length, only the compo joints being slightly loosened." Fortunately, these defects revealed themselves separately, and can be dealt with in rotation as they arise.

A matter which may cause trouble in the future is that concerning the main sewage outfall at Port Ahuriri. The sewage collects in a large holding-tank near the eastern mole at the entrance to the Inner Harbour. The outlet from this tank is controlled by a valve, and the sewage is discharged

on the outgoing tide. Prior to the earthquake, an immense volume of tidal water swept past this outlet, and the ebb tide carried the sewage well out to sea. The floor of the Ahuriri Lagoon has now been raised to such an extent that the tidal flow is negligible, and practically the only water flowing past the outlet is that brought down by the Tutaekuri River. This, except at flood-time, is a mere trickle, and there is a likelihood even that the river may be diverted. There is visual evidence that mixing of the sewage with the general body of sea-water is very slow, as from the hills overlooking the port discoloration of the water around the outfall can be observed even when the tank is not discharging. Fortunately the bulk of the sewage passes through pumps and is well broken up, but the increasing pollution of the foreshore and neighbouring beaches appears to be a possibility.

Hastings: Water and Drainage.

In Hastings the damage done to borough sanitary services was slight compared with that in Napier. A number of house fittings required replacement and a few broken sewers were found in the neighbourhood of pumping-stations. In general, however, the sewage system appeared to be undamaged, and has at no time been completely out of operation.

The water-supply ceased temporarily owing to failure of electric power and cessation of pumping combined with an abnormal draw-off for fire-fighting purposes. The rising main to the reservoir was broken by the destruction of the Havelock North Bridge and until this could be repaired the pumps had to operate continuously to maintain pressure in the mains.

As the result either of earthquake or drought, the yield from the twenty-four small artesian bores decreased to such an extent as to cause some alarm, and in September and October two additional 6 in. bores were driven to a depth of 300 ft. A good flow of water was obtained, and all anxiety on that score has been removed.

Analysis of the Hastings water immediately following the earthquake showed the presence of nitrites. As the old wells are comparatively shallow (160 ft. on the average) for artesian wells, and there were no earlier records for comparison, it was deemed advisable to chlorinate the water. During the driving of the two new wells careful analyses were made at the levels of the different strata, and nitrites were found to be present at all depths including the water drawn from a depth of 300 ft. As it appeared probable that the presence of nitrites was a natural feature in this particular locality, chlorination was discontinued after the end of November. That it is a purely local phenomenon is shown by the fact that other wells scattered about the Hastings Borough do not show the presence of nitrites.

Buildings.

Up to the 29th February permits were granted in Napier for the erection or renovation of permanent buildings to an amount totalling £342,292. The temporary buildings erected soon after the earthquake have served a useful purpose, but in the case of food premises and eating-houses have left a lot to be desired. In all new plans submitted special attention has been paid to sanitary details, particularly so in the case of hotels, theatres, and food-shops. In some cases the desire to cheapen construction had resulted in faulty design and layout in this respect; but in all cases where such faults have been demonstrated plans have been amended in accordance with the borough by-laws.

Building has been active also in Hastings, but the work done and still to do is on a very much smaller scale.

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